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Wages, Prices, and Employment

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MUCH ATTENTION has recently been given, both in academic journals and in speeches of prominent business executives and government officials, to the question of inflation, particularly the inflation of 1956-57. Although interest may temporarily lapse — at least on the part of the politicians — during the recession of 1958, inflation is so pervasive that its manifestations will soon be with us again.

Cost-Push Inflation

Recent arguments have distinguished two types of inflation: "classical" and "cost-push," with the latter sometimes being called wage-price inflation.¹

¹ See Theodore O. Yntema, "Wage Inflation: Public Enemy No. 1," address before the American Life Underwriters Association in Chicago, Illinois, October 11, 1957. "This kind of inflation [cost-push] has its roots primarily in the monopoly power of unions to force wages up even though there is no shortage of labor and there are insufficient increases in productivity to absorb and offset the wage increases." Also, Edwin L. Dale, Jr., "Basic Inquiry Into a Baffling Inflation," *New York Times Magazine*, August 25, 1957. For the opinion of a businessman who believes the cost-push inflation is not a unique type, see Carrol M. Shanks, "Are Prosperity and Stable Prices Incompatible," address before the Eco-

"Classical" inflation is defined as an excess of spending in relation to the amount of goods and services coming to market. The distinguishing characteristic of a "cost-push" rise in prices is its initial motivation. It is assumed to begin with an increase in costs, usually wages, that forces a rise in prices as entrepreneurs attempt to maintain profit margins.

A running account of a cost-push inflation begins with strong unions winning substantial wage increases in industries which are highly concentrated and which enjoy more than average gains in productivity. The rise in wages may or may not be proportionate to the improvements in productivity. If the wage increase is excessive relative to productivity, firms in these concentrated industries may raise their prices with little to fear in the way of price competition. In fact, the wage increase may be used as an excuse to raise prices to more profitable levels. However, employers whose workers are not union-

nomics Club of Detroit, September 16, 1957. "Classical" as it is used here does not refer to the classical school of economists. The term will be used later, without quotation marks, in its more traditional meaning.

ized, or who sell in highly competitive industries, are coerced, according to the cost-push argument, into granting similar wage increases. Without offsetting improvements in productivity, these employers must pass the increased costs on to their customers. Hence, the rise in prices is proportionately greater in those industries which did not initiate the increase in costs. This description of the recent inflation is "validated" by the observation that in 1956-57, prices rose more rapidly in nonunion, nonconcentrated service and trade industries than in unionized manufacturing.

Another aspect of the cost-push inflation, according to those who identify it as a unique and new phenomenon, is that it perpetually threatens to force a price rise regardless of the level of employment. As long as the Federal government pursues a policy of full employment and allows wages to be set in an unrestricted market with strong unions, it is argued that prices will rise even in the absence of excess demand.² It is asserted that there is upward pressure on prices even in the presence of some unemployment.

The cost-push argument would be inapplicable if it could be demonstrated that wage increases generally lead to decreases in employment. That is, if the economy's demand for labor is correctly represented by a demand curve with a

negative slope, then wage increases, in the short run, would lose their upward momentum. With unemployment continually rising, the bargaining power of unions would be undermined and it would be unnecessary for employers or nonunion labor to offer higher wages in order to attract additional workers.

Demand for Labor: The Classical Analysis

Weintraub³ and Bronfenbrenner⁴ have recently argued that the classical demand curve for labor is the most accurate representation of the short-run relation between the wage rate and employment. Using different approaches, both authors conclude that a wage increase tends to bring about less employment. Each contrasts the classical analysis with those of the underconsumptionists and of Keynes, taking the latter's perfectly inelastic demand curve for labor to be a middle position.

Since both Weintraub and Bronfenbrenner, particularly the latter, suggest that a wage increase will be followed by a price rise, to some extent they are in agreement with the cost-push argument. However, if every wage increase reduced the amount of employment, as hypothesized by the classical demand curve for labor, upward pressure on wages would be short-lived. In this respect, Weintraub and Bronfenbrenner

² This is the ratchet type of inflation, or secular inflation. For contrasting views, see Martin Bronfenbrenner, "Neglected Implications of Secular Inflation," pp. 31-58, and William S. Vickrey, "Stability Through Inflation," pp. 89-122, both in Kenneth K. Kurihara (ed.), *Post-Keynesian Economics* (New Brunswick: Rutgers University Press, 1954).

³ Sidney Weintraub, "A Macroeconomic Approach to the Theory of Wages," *American Economic Review*, Vol. 46 (December 1956), pp. 835-56.

⁴ Martin Bronfenbrenner, "A Contribution to the Aggregative Theory of Wages," *Journal of Political Economy*, Vol. 44 (December, 1956), pp. 459-69.

support the classical argument, wherein the inflationary effects of a wage increase are self-correcting.

Since it is impossible, in the aggregate, for every wage increase to bring a rise in the price level and simultaneously reduce employment, some analysis is necessary in order to relate the cost-push argument to the analysis supporting the classical conception of the demand for labor.

Wages and Prices at Different Levels of Employment

As a beginning, it is assumed that the relation between wages and prices varies with the level of employment. Under conditions of full employment — 97 or 98 percent of the labor force employed — a general wage increase tends to induce a price increase; contrariwise, at low levels of employment — unemployment of approximately 10 percent — a wage increase, even if it could occur, would probably not be reflected in a price increase. Exceptions might develop in highly concentrated industries, but even here, except under conditions of unusually favorable product demand and strong unionization, any wage increase is not likely to exceed recent improvements in productivity.

It is the intermediate case, when unemployment is between 5 and 8 percent of the labor force, which is crucial to the question under consideration. Does a wage increase under these circumstances lead to a price increase that ignites a cost-push inflation, or does it lead to an increase in unemployment that nullifies the possibility for further wage increases? The question may be

more appropriately phrased: Under what conditions will a wage increase lead to a price increase, to a decrease in employment, or to both? It is also possible, of course, that a wage increase may lead to an increase in employment, with or without any increase in prices.

Weintraub's Analysis

To deal with the problem of the price-employment effects of a wage increase, an analysis similar to Weintraub's is appropriate, with some modifications as suggested by Bronfenbrenner's model. Attention is focused on short-run adjustments of approximately one year. Since a significant amount of involuntary unemployment exists, 3.4 to 5.4 million with the current labor force, it will be assumed that additional workers may be employed without an increase in wage rates.

The level of employment depends on the relationship between the aggregate demand (D) and the aggregate supply (Z) functions.⁵ Aggregate demand has three components: consumption, investment, and government spending:

$$(1) \quad D = D_c + D_i + D_g$$

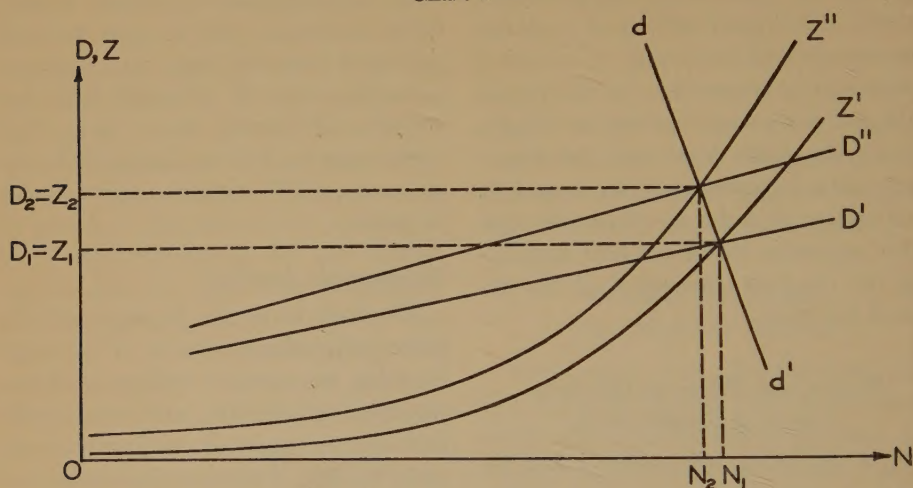
The consumption component depends on the average propensity to consume (c) and personal money income (Y_d):

$$(2) \quad D_c = cY_d$$

The value of c, of course, could change erratically if there are expectations of substantial changes in the price level. Personal money income, the payments to factors, consists of wage income (wN , the money wage rate times em-

⁵ The notation used follows that of Weintraub, *loc. cit.*, pp. 836-40, which is, of course, an adaptation of Keynes.

Chart 1



Source: Weintraub, "A Macroeconomic Approach to the Theory of Wages," pp. 836 and 842. The curve dd' is the classical demand curve for labor.

ployment), rentier income (F), distributed profits (kR , with R as a residual, including corporate taxes, depreciation, and net profits, and k the fraction of the residual paid out as personal income), and transfer payments (T):

$$(3) \quad Y_d = wN + F + kR + T$$

Weintraub treats D_1 and D_g cursorily, taking them as constants, and for the time being the same will be done here.

The aggregate supply function (Z) depends on the amount of money receipts that business firms require for a given level of real production and is determined by factor prices and productivity functions. Holding productivity functions and the stock of capital constant, aggregate supply may be assumed to be a function of employment:

$$(4) \quad Z = wN + F + R$$

The aggregate supply (Z) and demand (D) functions have common de-

terminants, but differ from each other in that, at any level of employment (N), one is the amount sellers are willing to sell, times the supply price, whereas the other represents the amount buyers demand, times the prices they are willing to pay for that amount. The intersection of the curves representing these two functions has inherently determined both the equilibrium level of employment and the equilibrium price level (Chart 1).

Why must the two curves intersect? The supply function is low at low levels of employment (N) because of a high capital-to-labor ratio and a competitive pressure to cut prices when there is considerable excess capacity. At high levels of employment, aggregate supply (Z) slopes sharply upward because of diminishing returns to scale in the short run. The aggregate demand curve (D) also slopes upward and to the right, but not nearly so steeply. The direction of

the slope of the demand function is caused by a high average propensity to consume when income is low, associated with low levels of employment (N), and contrariwise with high levels of N . The failure of D to rise sharply at high levels of employment is reinforced by (1) the inverse relationship between k and R , since when profits before taxes are high, a relatively small portion is paid as dividends, and vice versa; and (2) the residual income (R) is positively correlated with employment (N).

A shift of either aggregate demand or aggregate supply is almost certain to entail a shift of the other and is certain to lead to a new price level, or a new level of employment, and most likely both. For example, an exogenous shift of D , caused by consumers spending a larger fraction of their income, would bring a new equilibrium of the two functions with higher prices, greater employment, or both. If business firms attempted to achieve a higher profit position as a consequence of the increase in spending, the effect would appear largely in the form of increased prices.

What happens to the relation of the functions when there is a wage increase? If the new intersection of the D and Z functions is, graphically, directly above the old one, the total effect is on the price level—the Keynesian solution. The classical solution requires the new intersection of Z and D to be higher and to the left—higher prices and less employment, thus providing another point on the negatively sloped demand curve for labor. This is the solution depicted in Chart 1. As wages increase, Z' and D' move to positions

Z'' and D'' . The locus of the points of intersection of the Z and D functions, as wages move up and down, constitutes the classical demand curve for labor (dd').

Weintraub argues that under ordinary circumstances—no explosively optimistic expectations nor depressingly pessimistic expectations on the part of consumers and investors—the classical solution is the proper presentation of the relation between wages, employment, and prices. He divides the demand curve for labor into three sections. The upper portion is negatively sloped, he believes, because monetary policy will effectively restrict any large degree of inflation. That is, when wages are already high, an additional increase would bring tight money policies that would in turn inhibit both investment (D_1) and the tendency for prices to increase. Since this would prevent the D function from shifting as much as the Z function, the new intersection would be higher and to the left. The lower part of the demand curve is also negatively sloped, because at low levels of income, a “Pigou effect” would give some buoyancy to demand. The extent of the “Pigou effect” would depend on previous movements in the price level.⁶

Between the upper and the lower parts of the curve, Weintraub is less certain. However, he suspects that this portion of the curve is also negatively

⁶ If the price level is moving downward from some previous high, the real value of liquid assets would increase and there will be less saving out of current income. Weintraub, *loc. cit.*, p. 843; and Don Patinkin, “Price Flexibility and Full Employment,” *Readings in Monetary Theory* (New York: Blakiston, 1951), pp. 252-83.

sloped, for two reasons. First, a rising price level following a wage increase causes a shift in income from rentiers to entrepreneurs, and since only a fraction of the corporate residual is paid out as income, there is a tendency for the rise in D_e to lag as wages increase. Secondly, the fraction k decreases as R increases, again inhibiting the rise in D_e as wages increase.

Weintraub suggests two exceptions to this argument. If there are widely held expectations of rapidly rising prices, D_1 may increase enough to cause aggregate demand to rise substantially. Or, if there were a substantial redistribution of income from rentiers and entrepreneurs to workers, D_e would shift upward in favor of greater demand. This latter exception is an underconsumptionist conclusion; however, in Weintraub's purely competitive world, this could occur only if wages were a small portion of total marginal costs. Weintraub does not believe that either of these exceptions represents a real situation.

Bronfenbrenner's Analysis

In his analysis, Bronfenbrenner assumes the existence of some involuntary unemployment and an inelastic impact demand for labor. Under these assumptions, the initial burden of a wage increase is divided between higher prices and lower profits. Whether the wage increase will have a classical effect of reducing employment depends on whether it leads to an increase in demand for real output. Workers with larger incomes would increase their outlays in accordance with their marginal propensity to spend. In his desire to give the

benefit of doubt to those who argue for higher wages as a policy for curbing unemployment, Bronfenbrenner assumes a transfer of income from entrepreneurs to rentiers, as more capital would be purchased to substitute for the high-priced labor. Therefore, rentiers' spending would also increase — the degree depending on their marginal propensity to spend. The combined increases in spending of workers and rentiers is offset by the decline in entrepreneurs' income, and hence consumption spending. The increase in consumption is further offset by the higher prices, as they prevent the increase in money spending from being translated into greater purchases of real output. Accordingly, Bronfenbrenner's argument is that unless the workers' and rentiers' marginal propensities to spend are very high, entrepreneurs' marginal propensity to spend very low, and price increases very small, real output and employment will decline as a result of a wage increase. Although recent experience has indicated that workers' marginal propensity to spend is greater than rentiers' and entrepreneurs', Bronfenbrenner argues that the difference is insufficient to overcome the effect of the increase in prices. The effect of a wage increase, then, would be to reduce the aggregate demand for real output and to tend to reduce employment.

How does Bronfenbrenner's analysis square with that of Weintraub? Since they reach the same conclusion vis-à-vis the effect of a wage increase, it might appear that they supplement each other. However, on a number of crucial points, their analyses differ. First, Bronfenbrenner assumes a transfer of in-

come from entrepreneurs to rentiers, but ignores the possibility that the price effect might cause a reverse transfer in favor of profits, as Weintraub assumes. In the short run, unless prices rise rapidly, there may be little or no net shift between the two income groups. Secondly, Bronfenbrenner and Weintraub differ in the way they relate price increases to wage increases. The former sees the relation as a limiting factor that converts increased money spending into a proportionately smaller increase, and probably even a decrease, in real spending. The latter sees the wage-price relation as a cause of changes in both the D and Z functions. The D function would be affected by changing attitudes toward spending and saving as the price level changes, and the Z function would take into account the entrepreneurs' changed profit expectations. Rothschild⁷ criticizes Bronfenbrenner for ignoring the possibility of the influence of money illusion when both wages and prices are rising. Money illusion on the part of workers would increase their marginal propensity to spend as prices rose. Taking this possibility into account (by means of Weintraub's D function) there would be an increase in consumption spending as prices increased, and this would substantially alter Bronfenbrenner's conclusion.

Wage Increase in a Recession

Turning now to an application of Weintraub's analytical framework to

the problem of a moderate recession (5 to 8 percent unemployed), one modification in his model will be to hold fewer of the variables constant. In short, a more dynamic approach will be utilized, with particular emphasis being given to the pattern of change of D_1 , and how this pattern is likely to be altered by a wage increase. It was this consideration to which both Weintraub and Bronfenbrenner paid little attention. Furthermore, consideration should be given to the institutional framework of the economy. The rate and path of change in institutions which impinge upon the labor market qualify the purely functional relationships.⁸

Assume that one-third of all employees are union members, with some industries almost 100 percent unionized and others completely unorganized. Further assume that unions are growing at a rate not exceeding that of the labor force and that they do not represent any threat to the firms in unorganized industries. It is seen that these conditions approximate the current status of organized labor in the United States economy.

To set the stage, the characteristics of a not-unusual type of recession will be assumed. Consumption and investment spending have been declining, relative to the rate of growth of the labor force, from a previous full-employment level. Once the recession is recognized, it is assumed that government spending (D_g) rises or that taxes are reduced, and that easy money policies are adopted by the central banking system.

⁸ Howard R. Bowen and Gerald M. Meier, "Institutional Aspects of Economic Fluctuations," in Kurihara (ed.), *Post-Keynesian Economics*, pp. 155-69.

⁷ K. W. Rothschild, "Aggregative Wage Theory and Money Illusion," *Journal of Political Economy*, Vol. 45 (October, 1957), pp. 442-45; see also, Bronfenbrenner's "Reply" and Rothschild's "Rejoinder," *ibid.*, pp. 445-48.

At the time the wage increase occurs, the rate of decline of investment (D_i), particularly in inventories, shows signs of diminishing. The rate of decline of consumption (D_c) has also tapered off because income is falling more slowly as a result of the diminishing rate of decline of D_i , rising D_g , and increasing transfer payments to the unemployed. With the labor force growing at a normal rate and with aggregate demand declining, unemployment is assumed to have reached 4.5 million to 5 million.

It should be emphasized that the analysis pertains to the stage of recession after unemployment has appeared. In a sense, the economy is pausing to decide whether to resume its downward movement, to stabilize at its current level, or to return to full employment. In this environment, what is the employment and price effect of a wage increase? The answer, of course, depends on its impact on D_c , D_i , and Z .

Nature of the Wage Increase

The impact of a wage increase depends, in part, on the nature of its initiating force. Pressure for a wage increase must come from a change in demand or supply. In a recession, employers are generally able to hire all the workers they desire at the going wage and there is no reason to expect any upward pressure for a change in wages on the demand side. Increases in wages resulting from greater demand for specialized types of labor would be confined to a comparatively few workers and can be ignored. On the supply side, an upward pressure on wages would be the consequence of union action, per-

haps in the form of a few key bargains which set the pattern that would be followed by other segments of unionized labor and, through sympathetic pressure, might be transferred to some non-union workers. However, sympathetic pressure⁹ would be weak because of the slow rate of growth in union membership and because of the presence of unemployment. So long as nonunionized companies had no reason to expect their employees to leave for new jobs or to rush into the arms of a union if a wage increase was not granted, their generosity as to wage increases would be limited.

For the present argument, it is more important that the wage increase be widely recognized than that its benefits extend to large portions of the labor force. If publicity were given to the wage increase, it would be more likely to counteract any existing negative price and wage expectations.

It is assumed, then, that the wage increase is initiated by a new bargaining agreement in a major unionized industry. It is not necessary to prove that in a recession a union would have enough bargaining power to bring this about. It is sufficient to note that in recent years wage increases have occurred under such circumstances. The union may be required to strike for a long period to reduce the employer's inventories to normal levels, and it may have to settle for a long-term contract. Nevertheless, the bargain wages be-

⁹ The term "sympathetic pressure" is used here in the sense of Harold M. Levinson, *Unionism, Wage Trends, and Income Distribution, 1914-47* (Ann Arbor: University of Michigan Press, 1951), pp. 67-73.

come a model for other unions to emulate.

The wage increase may lead to the expectation of a reversal, of no further change, or of another immediate increase in a pattern of continually rising wages. The last possibility should be ruled out because of the existing levels of unemployment. The first may be considered as unlikely, given the strength of unions and the recent history of wage increases in the United States. Widespread decreases in wage rates are no longer to be expected, even in a recession. The assumption is made that the wage increase is expected to be a once-only change, with no expectations of further wage changes in the immediate future. If the key wage bargain is tied to a long-term contract, this latter expectation would be fortified.

Impact on D_c

The effect of the wage increase on consumption (D_c) depends on how it changes the amount and distribution of personal money income (Y_d) and on the propensities to consume. The impact elasticity of demand for labor is certainly not zero, but it is probably less than one, as is assumed here.¹⁰ Thus, the wage portion of D_c is increased by somewhat less than an amount equal to employment times the wage increase ($N\Delta w$). The efforts of entrepreneurs to substitute capital for labor

would tend to lead to some increase in rentiers' income. However, in the short run, changes in entrepreneurs' capital spending plans would probably not be great, particularly spending for which elaborate engineering and architectural planning is a prerequisite. These investment plans would not have enough time to ripen into finished productive capacity, even though borrowing by business firms would increase. With monetary authorities keeping the interest rate low, the increased demand for funds would not bring about any rise in the cost of money. It would, however, bring some increase in the total return to rentiers and give a modest increase to F .

With increased wage payments and greater outlays for funds, profits will decline unless there is an increase in the number of units sold, prices, or both. Given the status of aggregate demand in the recession, entrepreneurs may deem it unwise to pass the wage increase on to consumers immediately. That is, competitive pressures resulting from excess capacity may hold prices in line. However, if the wage increase has the net effect of increasing aggregate demand, unit sales will increase. For the moment it can be assumed that prices remain constant and that unit sales increase, but not enough to prevent some decrease in profits. The decrease in kR (distributed profits), however, will be less than the decrease in R , because k is a positive fraction less than one and because, in the short run, k increases as R decreases.

These changes in factor payments add to an increase in Y_d , with a redistribi-

¹⁰ Bronfenbrenner, *loc. cit.*, p. 461, suggests the inelastic impact demand for labor "seems to be the major substantive (as distinguished from methodological) contribution" of Richard A. Lester in "Shortcomings of Marginal Analysis for Wage-Employment Problems," *American Economic Review*, Vol. 36 (March, 1946), pp. 63-82.

bution of income from entrepreneurs to workers and a modest gain for rentiers. Whether the rise in Y_d leads to an increase in D_c , and to what extent, depends on the relevant marginal propensities to spend and how they are affected by the wage increase. Since there is no expectation of a reverse of the wage increase, it may, for wage-earners, lead to a release of delayed spending plans, a marginal propensity to spend close to unity. Unemployed workers receiving transfer payments will also have a very high marginal propensity to spend.

The consumption segment of aggregate demand would increase under the circumstances described, the major boost coming from workers' larger incomes which are associated with a rising marginal propensity to spend. The conclusion differs from Weintraub's in that there has been a transfer of income from entrepreneurs to labor. Whether this is an absolute transfer, or merely a change in relative distribution associated with a higher income, depends on the degree to which money spending does increase. The basic reason for this conclusion is that contrary to Weintraub's belief, there is no assumption of pure competition and the present discussion is a short-run analysis. Pure competition is not assumed and it is possible for the increase in real income, because excess capacity is utilized, to flow in larger measure to labor. This transfer of income is not to be attributed to union bargaining power,¹¹

which in general is assumed to be weak. A reverse transfer of income from labor to entrepreneurs may occur in a later stage of the recession, or when full employment is again achieved.

Impact on D_i

In the stage of recession under analysis, the rate of decline of investment (D_i) is assumed to be less than it had been previously. This may mean only that expenditures on capital equipment are being allowed to fall behind a schedule that was planned during a previous full-employment period and that inventories are being reduced to what is currently accepted as appropriate, relative to present sales. Against this background, what is the impact of a wage increase on D_i ? This will depend upon (1) the change in D_c and entrepreneurs' sales expectations, and (2) the interest rate. For short-run analysis, the possibility of adopting capital-using innovations may be ignored as a factor causing changes in the pattern of change of D_i .

There would be little evidence of a Keynesian interplay between the interest rate and rising wages and consumption spending.¹² Even if this did tend to exert an upward effect on the interest rate, D_i would be influenced only to the extent that it was elastic to the rate of interest. Furthermore, assuming an easy money policy, the increased demand for liquidity would be offset by an expansion of the money supply. Therefore, there is no reason to expect restrictions on D_i because of a rise in interest rates.

¹¹ Levinson, *op. cit.*, pp. 80-110. See also, Clark Kerr, "Labor's Income Share and the Labor Movement," in George W. Taylor and Frank C. Pierson, *New Concepts in Wage Determination* (New York: McGraw-Hill Book Company, 1957), pp. 260-98.

¹² Keynes, *General Theory of Employment, Interest, and Money* (New York: Harcourt Brace and Company, 1936), pp. 263-64.

It was assumed earlier that there would be little or no increase in prices. If this is true, profit margins will decrease as a result of the wage increase. However, when juxtaposed with a rising sales volume, produced with previously idle capacity, the marginal efficiency of capital will be negatively affected to only a modest degree. In other words, per-unit profits decline, but total profits may remain nearly the same. Furthermore, in highly concentrated industries, price increases may go hand-in-hand with an increase in sales, especially when the wage increase can be used as a convenient excuse. If this is the case, profit margins rise in concentrated industries as a result both of the price increase and of the more efficient utilization of capacity. In general, although profit margins may decline in competitive industries (here sympathetic pressure, and hence wage increases, would likely be smaller than in concentrated sectors), they may actually increase in those where there is an opportunity for an increase in sales volume and prices.

It should be interposed at this point that the price increase permitted in the previous paragraph runs counter to the earlier assumption of no increase in prices. It seems to bring us to the situation described by Bronfenbrenner — namely, increased money spending does not lead to an increase in real spending. However, three reservations are in order. First, to the extent that entrepreneurs are able to raise prices and thereby improve profits, the marginal efficiency of capital is favorably affected and D_1 is increased. This possibility was neglected by Bronfenbrenner. Secondly, the rise in wages and prices

transfers income from rentiers to entrepreneurs and workers, and the latter will spend much larger portions of the new income unless completely free of any money illusion — a conclusion that seems most unlikely. And finally, the price rise may appear in only a limited number of industries, at least at the low point of the recession and during the early stages of recovery. This would prevent the increase in money spending from becoming a reduction in real spending. These three reservations are not consistent with each other; that is, either the first two may be applicable, or the third one, but the three cannot occur simultaneously. However, if the first two, or the third, is appropriate, the analysis leads to a result different from that envisioned by Bronfenbrenner.

Special attention should be given to the inventory component of D_1 . If prices do not rise, greater real spending will cause inventories to reach an appropriate ratio to sales. Declining inventories with rising sales will tend to produce an accelerator effect on this segment of D_1 . On the other hand, a price increase may also stimulate inventory spending. If there are expectations that the once-only wage increase will be followed by an increase in prices, efforts will be made to augment inventories ahead of schedule.

So far it has been demonstrated that under the conditions described, aggregate demand will increase as a consequence of the wage increase. D_0 will rise and D_1 may move in either direction; however, if D_1 declines, it will not be enough to counteract the rise in consumption. The original assumptions put D_g at a higher level than prevailed

in the previous full-employment period. Whether the combination of these factors leads to a classical, Keynesian, or underconsumptionist result depends on what happens to aggregate supply.

Impact on Z

In large part, the change in Z resulting from the wage increase has already been determined. The rise in wages, with the immediate decrease in employment being proportionately smaller, means that entrepreneurs have cause to insist upon higher proceeds at each level of N. However, this is qualified by the degree to which excess capacity may be used efficiently.

The Z function is a productivity function — the summation for all firms in the economy — that represents some excess capacity at current levels of unemployment, especially considering the fact that a higher level of employment existed previously. Of course, it is possible that the previous full-employment period was characterized by gross over-utilization of capital and that current levels of employment represent an optimum ratio of labor to capital. If such were the case, however, the over-utilization of capital would have touched off a rise in D_1 , making a recession unlikely — or at least delaying it so long as plant and equipment were in short supply. Ruling out this possibility, if D rises when wages increase, an increase in output consistent with more efficient levels of production softens the impact of the wage increase on entrepreneurs.

The return to more efficient levels of output assumes that the pattern of consumption and investment does not

change during the period of rising employment from what it had been in an earlier period of prosperity. It is possible that consumption after the wage increase would be directed toward industries that had suffered relatively little decline in the recession. Such an eventuality would mean that there were no efficiency gains (no utilization of excess capacity) as a result of the increased output. However, in the short period, a change in consumers' tastes of this magnitude may be ruled out as unlikely. Hence, the effect on the Z function is partially offset by improvements in productivity.

The shift in the aggregate supply function, considering the wage factor alone, would tend to be only moderately restrictive. The F factor would not be the cause of much of a change in the Z function, since a slight increase in the demand for funds could be satisfied without a change in the interest rate. The change in Z resulting from residual R requires more careful consideration, since some entrepreneurs would be able to improve their profits by raising prices and thus recoup a portion of the higher wages. Taking into account the competitive pressures and the possibility of profitably utilizing excess capacity at current prices, the increase in the Z function from this source could be significant, but not excessive.

Adding together the possible changes in the aggregate supply function, there would likely be a shift to the left, but proportionately less of a shift than in aggregate demand. The new equilibrium of D and Z, under the conditions described, would be at both higher prices and greater employment, leaving

aside the question of which was greater, the price effect or the employment effect. However, if the wage increase contributed to higher levels of employment during a recession, under assumed fiscal and monetary policies, further increases would become cumulative and the price effect would tend to overshadow the employment effect—unless, of course, future wage increases were proportional to or less than productivity gains.

Conclusion

Which is a better description of the slope of the demand curve for labor during a recession, a classical curve or the curve implicit in the cost-push argument? The latter appears to be a better approximation to the recession described. A wage increase is less likely to bring declining employment than it is to bring rising employment with higher prices. The cost-push inflation argument, however, is much too oversimplified and places the blame for inflation on one of the accessories to the crime rather than on the real criminal. The wage increase may or may not be the initiating force in an inflation which develops after a recession, but if it is, this is because it occurred in an economic environment conducive to inflation. The real culprit is excessive aggregate demand, which in the United States institutional framework cannot be attacked by forcing wage decreases.

This has been a short-period analysis of the impact of a wage increase in a recession. Perhaps a short-run analysis is all that is necessary for a modern recession if the experience of 1949 and

1954 is indicative. Different results would have been observed if a longer period of unemployment had been considered. The rise in D_1 and D_g would, under favorable circumstances, encourage a rise in D_c and perhaps set off an inflationary spiral. Or a continuation of the decline in D_1 might eventually reverse any expansionary effects of a wage increase.

No attempt was made to deal with the elusive problem of describing labor supply.¹⁸ The only aspect of labor supply crucial to the question analyzed was how workers would respond to a wage increase. Since there was a considerable amount of unemployment, it was reasonable to assume that a modest wage increase would be more than adequate to attract enough workers to satisfy entrepreneurs' wishes. Hence, the supply of labor was taken to be perfectly elastic to an increase in wages.

A wage increase in a recession, then, is likely to have a favorable effect on employment and perhaps an inflationary effect on prices. Although it has not been argued which of these two effects will be greater, the former will tend to exceed the latter if there is a large amount of excess capacity which may be efficiently utilized as the economy expands. However, the main burden of the argument has been that a

¹⁸ Cf. Weintraub, *loc. cit.*, pp. 847-51, and P. E. Junk, "A Macroeconomic Theory of Wages: Comment," *American Economic Review*, Vol. 47 (September, 1957), pp. 679-82. See also Weintraub's "Reply," *ibid.*, pp. 682-85.

wage increase will stimulate a rise in employment, regardless of the price effect, under the conditions typical of a modern recession. It is assumed that these conditions would include (1) easy money and at least a moderately counter-recessionary fiscal policy, (2) an inelastic impact demand for labor, and (3) excess capacity. A wage increase which is sufficiently widespread and

publicized will have favorable influences upon employment. The only reservation that needs to be made is that if prices do rise, the workers' marginal propensity to spend must reflect some money illusion. However, this need not be true to the extent suggested by the Bronfenbrenner - Rothschild exchange, since the rising price level should encourage greater investment.

The Voluntary Credit Restraint Program: An Appraisal

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EFFORTS to convince commercial banks of the desirability of curbing nonessential loans were made by the Federal Reserve during World War I. The distinction made between speculative and non-speculative loans by the Federal Reserve Board in the late 1920's is also well known. But probably the most important application of the technique of moral suasion in the history of the Federal Reserve System was the Voluntary Credit Restraint Program (VCRP) introduced during the Korean emergency. Inaugurated by the Board of Governors on March 9, 1951, under Section 708 of the Defense Production Act of 1950, the program was one of a number of practices that were exempted from the antitrust laws. Collusive action was allowed as an authorized voluntary agreement in the public interest, contributing to national defense.

The program was conceived at an FRB-sponsored conference of representatives of the financial community. The

legal counsel of the Federal Reserve Board and the United States Attorney General's office added some technical amendments. The Attorney General insisted that officers of the Federal Reserve Banks serve on the regional committees; previously the Federal Reserve had held the view that their participation would detract from the private and voluntary nature of the program.

The Federal Reserve Board formally suspended the program on May 12, 1952; shortly after, on June 30, 1952, Congress withdrew the legislative authorization for the program. From the beginning the VCRP included life insurance companies and investment banking houses as well as commercial banks; subsequently mutual savings banks and savings and loan associations took part. This article is chiefly concerned with an appraisal of the commercial banks' participation in the program.

I.

The criterion as to whether a loan would be in harmony with the objectives of the program was a positive reply to the test: "Does it [proceeds of the loan] commensurately increase or maintain production, processing and distribution of essential goods and services?"¹ The first bulletin of the National Voluntary Credit Restraint Committee (dated March 20, 1951) urged that inventories beyond reasonable levels should not be financed with borrowed money. A month later the committee recommended the postponement of any plant and equipment expenditures by producers of nonessential goods. State and local governments were similarly asked to defer public works not indispensable for public health, safety, or defense.

Mr. Oliver Powell of the Board of Governors, who was in over-all charge of the program, expressed its objectives on a number of occasions as an

attempt to stop the use of credit for speculative purposes, to channel credit into defense and defense-supporting activities, to reduce the credit made available for postponable and less essential civilian purposes, and to engender a more cautious and careful lending policy on the part of lending officers.²

¹ "Program for Voluntary Credit Restraint," *Federal Reserve Bulletin*, Vol. 37 (March, 1951), pp. 263-66. For the bulletins of the National Committee, see *ibid.*, *passim*. Source material for this study was drawn mainly from the unpublished minutes of the National Voluntary Credit Restraint

When in doubt, a lending institution could submit details of a loan application — omitting the would-be borrower's name — to members of a regional subcommittee. Informal contact with committee members was also a possibility. In each Federal Reserve district there was a committee for commercial banks, consisting of private bankers and a senior officer of the District Federal Reserve Bank. Banks were informed promptly whether the loan in question appeared "to violate the principles of the VCRP." The scope of the scheme is illustrated by the fact that, over the life of the program, the committee of the New York Federal Reserve Bank processed 82 formal inquiries. A small bank in the Adirondack region, for instance, inquired concerning a \$1,000 loan request of a fuel oil dealer to re-

Committee (Washington: Board of Governors of the Federal Reserve System) and of the Second District Commercial Banking Voluntary Credit Restraint Committee (Federal Reserve Bank of New York). In addition, the Patman Committee's publications are valuable references: U. S. Congress, Joint Committee on the Economic Report, Subcommittee on General Credit Control and Debt Management, *Monetary Policy and the Management of the Public Debt, Hearings*, 82nd Cong., 2nd Sess.; *Ibid.*, *Senate Document 123*, 82nd Cong., 2nd Sess.

² Oliver S. Powell, "The Voluntary Credit Restraint Program," Robert Morris Associates *Bulletin*, Vol. 34 (1951), p. 169; Powell, "What Credit Standards in an Inflationary Economy?" *Commercial and Financial Chronicle*, Vol. 174 (November 1, 1951), p. 1670.

place equipment; the committee gave an affirmative opinion.

Wishing to further clarify the program's principles and to achieve nationwide uniformity of criteria for judging applications, the national committee of the VCRP in November, 1951, published a digest of opinions given by the district committees. These committees had recommended refusal of loans in such cases as these: an application for funds by a farm implement dealer wanting to erect a sales and service building in order to retain his franchise; a request by a chain variety store contemplating the retirement of its outstanding preferred stock; and an application by a municipality wanting to acquire vacant land for parking facilities.

From the beginning, the VCRP was entirely voluntary. Private commercial banks as lenders could not be compelled to accept the criteria of the program. They could neither be coerced into submitting inquiries to district committees, when doubtful loans were under consideration, nor be forced to accept the judgment of the regional committees, when consulted.

Bulletin 4 of the national committee, covering loans on real estate, was liberalized after three months (in September, 1951) when it became apparent that a substantial number of banks were ignoring the original recommendations and that bankers adhering to

the program were at a disadvantage. Even the recommendations of the national committee's revised bulletin were generally disregarded — at least so far as farm mortgage loans were concerned. In underwriting activities, Vice President Arthur Phelan of the Federal Reserve Bank of New York complained at the end of 1951 that in a number of cases the proceeds from loans were not being used for purposes in harmony with the program of restricting nonessential activity.³

Despite such episodes, it was widely held that financial institutions cooperated with VCRP. A few days after the start of the program, the national committee hailed the cancellation or postponement of a considerable number of loans which were considered inflationary. Most bankers who replied to the questionnaire of the Patman subcommittee on credit control and debt management specifically stated that they were complying fully with the program. The Board of Governors reported that millions of dollars of nonessential loans had been refused.⁴ The First National Bank of St. Paul alone claimed to have declined applications for loans totaling over \$7 million. In the Richmond Fed-

³ Eastern Investment Banking VCRC, *Minutes*, December 7, 1951 (Federal Reserve Bank of New York).

⁴ U. S. Congress, Senate Committee on Banking and Currency, *Defense Production Act of 1952, Hearings, Part I*, p. 83; "The Bankers Do a Job," *Fortune*, Vol. 44 (October, 1951), p. 93.

eral Reserve district, 165 banks refused 3,500 requests for loans aggregating \$28 million. In other instances, the program was less direct, but no less effective. Businessmen, once they were educated as to the purpose of VCRP, refrained from requesting loans inconsistent with its goals.

A banker could refuse a loan request which was not in harmony with the program, apparently confident that the rejected applicant would not be accommodated at a rival financial institution.⁵ When it was discovered, for example, that rejected borrowers were resorting to sales finance companies, an informal meeting was held with representatives of these companies and other nonbank commercial lenders. Although no committee was organized for finance companies, they were requested by the other committees to abide by the program. Commercial banks were asked to screen informally the policies and operations of these lenders when the banks established lines of credit for them.

Government officials no less than financiers hailed the success of the pro-

gram.⁶ President Truman's evaluation that it had "done a great deal of good in limiting credit expansion in inflationary pressures" was typical. The president of the American Bankers Association praised the VCRP "as a tried and proven weapon in the successful fight against inflation."⁷ Mr. Powell, of the Board of Governors of the Federal Reserve System, thought it had been "a considerable factor in the restoration of the public's confidence in the purchasing power of the dollar."⁸ The Council of Economic Advisers estimated that in the absence of the program there would have been a greater expansion of loans than had occurred. That nearly four hundred busy men were willing to serve without compensation on the various regional committees is perhaps further evidence of the value of the program.⁹

⁵ See e.g., J. Brooke Willis, "Credit Control Still a Problem," Conference Board *Business Record*, Vol. 8 (November, 1951), p. 436; statement of O. S. Powell, *New York Times*, November 24, 1951, p. 10; President Shelton of the American Bankers Association, *ibid.*, October 1, 1951, p. 32; Chairman Martin, *ibid.*, October 3, 1951, p. 49; and again October 18, 1951, p. 47; O. S. Powell, "VCR — Controls Without Coercion," *Dun's Review*, Vol. 62 (July, 1952), pp. 20 and 70.

⁷ *New York Times*, March 25, 1952, p. 37; *Banking*, Vol. 44 (May, 1952), p. 126.

⁸ Patman *Hearings*, p. 465.

⁹ Kenton R. Cravens, "Success of the VCP," Robert Morris Associates *Bulletin*, Vol. 34 (1951), pp. 228-29; O. S. Powell, *ibid.*, p. 169.

⁵ National VCRC, *Minutes*, March 14, 1951; *Banking*, Vol. 43 (June, 1951), p. 36; O. S. Powell, "The VCRP," Robert Morris Associates *Bulletin*, Vol. 34 (1951), p. 170; Roger F. Murray, "Voluntary Credit Control and Inflation," in American Assembly, "Inflation," Vol. III, Ch. 15, p. 2 (mimeographed, research and background material on inflation prepared for the 2nd American Assembly, to be held May 18-22, 1952).

II.

What are the factors which account for the widespread impression that the VCRP was a "success"? The vagueness of the rules for judging whether or not a loan was in harmony with the program is probably at least partly responsible for the "success." The statement of principles and the six bulletins issued during the life of the program were intentionally couched in general terms because it was believed that detailed, precise rules would not be suitable and might serve to discourage many financial institutions from participating. The Board of Governors argued that relying on the willingness of lenders to abide by the spirit of the program was more appropriate than calling on them to abide by a multitude of legalistic rules. Presidents of the Federal Reserve Banks cited the advantages of flexibility and an absence of inequity fostered by a system of direct government rationing of loans. A voluntary program was superior to a compulsory one, because, according to Powell, with compulsory programs "there is a tendency to do just what the wording of the regulation calls for." Moreover, compulsory devices would necessitate a huge policing arrangement. Whatever the ostensible advantages of a voluntary program, it is easy to pronounce such an arrangement to be successful if the standard of measurement is sufficiently vague.¹⁰

¹⁰ Cf. the argument of William Wither-

This absence of any concrete official gauge complicates considerably the task of measuring the program's success. One objective of the VCRP, it will be recalled, was a reduction of credit for "postponable and less essential civilian purposes." However, data collected by the Board of Governors during this period with respect to the purpose of commercial and industrial loans shows a net increase of more than a quarter of a billion dollars in loans for nondefense activities during the life of the program; especially noteworthy were the increases which occurred during the second half of 1951. (See Table 1.)

If the touchstone is not a decrease in total loans, but their diversion to defense industries (as suggested by investment banker Rudolf Smutny who was a member of the National Committee¹¹) then the record is clear: the volume of bank loans did increase after March, 1951, when VCRP was instituted, albeit at a slower rate than in the period immediately following the outbreak of war in Korea. Loans at large banks rose by \$1.4 billion from July 1 to October 31, 1951; defense loans accounted for about half of the

spoon that what the banker "really said with these self-imposed restrictions was that he would continue to exercise the same scrutiny to see that all loans were 'justified,' just as he had been doing all along." ("Financial Letter," Newhard, Cook and Company, Vol. 6, No. 33, October 3, 1951).

¹¹ *Commercial and Financial Chronicle*, Vol. 174 (December 6, 1951), p. 2148.

Table 1. Changes in Commercial and Industrial Loans Made by Large Banks
(Millions of dollars)

Purpose of loan	Quarter ending				Five weeks ending April 30, 1952
	June 27, 1951 ^a	Sept. 26, 1951	Dec. 26, 1951	Mar. 26, 1952	
Defense contracts.....	246.2	257.0	211.9	317.7	— 6.8
Defense-supporting activities:					
Plant and equipment.....	98.8	292.7	234.0	210.6	20.1
All other.....	53.9	63.9	71.9	78.4	5.0
Nondefense activities:					
Inventory and working capital..	-131.8	301.1	1,247.9	-667.4	-495.9
Plant and equipment.....	134.0	42.5	1.2	43.1	- 11.1
Retirement of nonbank debt and preferred stock.....	- 10.6	22.3	7.6	16.8	- 0.9
All other.....	- 47.4	- 12.8	31.3	- 72.4	- 9.0
Net change in classified loans...	343.1	966.7	1,805.8	- 73.2	-498.6

^a Data are for 200 reporting banks with 65 percent of outstanding loans; for other quarters, data are for about 220 reporting banks with 75 percent of loans outstanding.

Source: Board of Governors of the Federal Reserve System, *Changes in Commercial and Industrial Loans, By Industry and Purpose*, weekly report H12 dated January 5, 1952, and May 14, 1952.

advance. This is in contrast to an increase twice as great in the corresponding months of 1950, when only a small amount of borrowing was for defense purposes. Federal Reserve officials estimated that about two-thirds of the increase in business loans during the life of the program was attributable to defense production orders.¹²

Table 2. Changes in Loans at All Commercial Banks
(Billions of dollars)

Period	Total loans	Business loans
1950: First half.....	7.5	-0.1
Second half.	1.8	5.0
1951: First half.....	2.6	1.7
Second half.	3.5	2.4
1952: First half.....	1.5	-0.6
Second half.	5.0	2.6

Sources: *Federal Reserve Bulletin*, February, 1952, p. 116, and February, 1953, p. 92.

As a goal, the directors of the Federal Reserve Bank of New York proposed that the aggregate volume of credit extended by the nation's banks should not increase during 1951. This is similar to the test suggested by Winthrop W. Aldrich—avoidance of an increase in total business loans outstanding at the commercial banks.¹³ Actual results are revealed in Table 2. From this standpoint, too, the VCRP was at best a qualified success.

The lack of precision in the criteria of loan selection was clearly one limita-

¹² *New York Times*, May 6, 1952, p. 41.

¹³ Federal Reserve Relations Committee, Third Federal Reserve District, *Proceedings*, May 4, 1951 (Philadelphia, 1951), p. 25. *Commercial and Financial Chronicle*, Vol. 174 (November 22, 1951), p. 1973. Karl Bopp of the Philadelphia Federal Reserve Bank (FR Relations Committee, *op. cit.*, p. 24) thought the program would be success-

tion on the program's effectiveness.¹⁴ W. Randolph Burgess suggested that the concepts of essential and nonessential be redefined and that advance approval of large term loans and new security issues be required. This, while stiffening the program considerably, would at the same time have altered its fundamental nature. In fact, the United States Attorney General rejected a letter which the Eastern Investment Banking Committee proposed to send to major underwriters concerning the screening of common stock issues. The Justice Department believed this would be inconsistent with the voluntary nature of the program.¹⁵

Whatever the compliance record, bank profits did not suffer. Before taxes, insured commercial banks showed a slightly higher return on their capital in 1951 and 1952 than in the preceding seven years. The 8 percent after-tax return compares with a 9 percent average for the previous seven years.

Support for the program was strengthened by the fact that the threat of direct government regulation loomed as an unpalatable alternative. "Major lenders are aware that the voluntary program must succeed," a national

ful if loans did not expand relative to real aggregate production. The record, however, shows an increase in loans of all commercial banks almost twice the growth in real GNP.

¹⁴ Lester V. Chandler, "Selective Credit Controls," *American Journal of Economics and Sociology*, Vol. 11 (1952), p. 252.

committee member observed. President Truman had suggested that lending might have to be curbed by wartime regulations or special reserve requirements.¹⁶ Charles E. Wilson, director of the Office of Defense Mobilization, wrote Mr. Powell: "I hope that you will impress upon the [financial] industry leaders the deep interest of the Government in the success of this effort. Otherwise, it will be necessary for my Committee to consider what additional steps may be required in the private credit field."¹⁷ On May 31, 1951, Wilson, Treasury Secretary Snyder, Chairman Martin of the Board of Governors, and Chairman Keyserling of the Council of Economic Advisers submitted a credit policy memorandum, which, while endorsing the VCRP, suggested stand-by authority for mandatory limits on loans. When the program was concluded, people on Wall Street are reported to have felt that the pro-

¹⁵ W. R. Burgess, *The Banker and Inflation* (New York: American Bankers Association, 1951), p. 15, and Eastern Investment Banking VCRC, *Minutes*, January 28, 1952, Exhibit B.

¹⁶ R. Smutny, *Banking*, Vol. 43 (June, 1951), p. 36. Truman, *New York Times*, March 15, 1951, p. 43.

¹⁷ National VCRC, *Minutes*, March 29, 1952; quoted by Smutny in an address delivered before the Municipal Forum, April 13, 1951, "National VCRC and its Impact on the Investment Banking Business" (photo-offset, Federal Reserve Bank of New York). Cf. the statement of the deputy manager of the ABA, Robert Morris Associates *Bulletin*, Vol. 33 (1951), pp. 316 and 320.

gram had served "a constructive public purpose . . . in having obviated the need for the establishment of an official agency to screen capital issues."¹⁸

One method of evading VCRP was not to state the true purpose of a loan. According to one estimate, such misrepresentation was "exceedingly small in relation to the total extension of credit during the period."¹⁹ But the chairman of the New York District Commercial Banking Voluntary Credit Restraint Committee, George Whitney of the Morgan bank, suggested that certain corporations were obtaining supposedly defense loans and using them "to bolster their competitive position." The chairman of the Eastern Insurance Committee argued that only a portion of a \$115 million loan commitment made by a very large insurance company to a major manufacturer would be devoted to defense or defense-supporting purposes. Thus, not only might the actual use to which a loan would be put be concealed, but also only part of a loan might go for defense activities, while the remainder might be devoted to nonessential expansion. Moreover, a diversified enterprise could borrow for defense work, presumably abiding by the program, yet release budgeted working capital for nondefense ends.

Any evaluation must consider that

the VCRP shared all of the limitations and drawbacks of selective credit controls. Professor Milton Friedman, concerned with the inequity of a scheme not relying on the price mechanism and the consequent misallocation of resources, argued that so far as the program "has any effect, it does so through the exercise of arbitrary power without the economic check of competition or the political check of the responsibility to the electorate."²⁰ Uneasiness with the program was also expressed by the Patman subcommittee of 1952, despite its willingness to praise the spirit in which VCRP was administered and to acknowledge that there was much testimony to the effect that the program had been "most helpful in a difficult period."²¹

III.

Several lessons can be drawn from the fourteen-month experience with the VCRP. Success for an effort of this nature is most likely in a period when it would be most needed — a period of national emergency. Primary reliance, however, should not be placed on the willingness of financial institutions to cooperate. At best a voluntary program can serve to supplement the familiar

²⁰ Patman *Hearings*, pp. 690-91.

²¹ U. S. Congress, Joint Committee on the Economic Report, *Monetary Policy and the Management of the Public Debt*, Report of the Subcommittee on General Credit Control and Debt Management, p. 38.

¹⁸ *New York Times*, May 6, 1952, p. 47.

¹⁹ Roger F. Murray, *loc. cit.*, p. 10.

quantitative and selective credit controls. Thus during the period under review, the Board of Governors abandoned its policy of supporting the price of government bonds, and made use of Regulations W and X to curb directly consumer and real estate credit. Within the framework of Federal Reserve restrictions on the aggregate volume of credit, the program could aim at redirecting the flow of funds into channels considered essential. In a tight money market, lenders will of necessity have to ration credit. The ruffled feelings of rejected applicants can be assuaged with an explanation of the nature and purpose of programs like VCRP. Moreover, as businessmen are educated by speeches and periodicals, they may refrain from requesting loans not in harmony with the program. For this and other reasons, the program's objectives must be made crystal-clear and as concrete as possible. Also, cooperation may come more readily from a financial community made aware that more rigid government regulation is an alternative to voluntary restraint. Although they may threaten such regulation, the authorities may decide not to use it because of the difficulty of framing a satisfactory, water-tight directive and because of the problem of enforcement.

What particularly distinguished the VCRP from earlier efforts at moral suasion was its all-embracing scope. Recognizing that any attempt to redi-

rect the flow of lending had to involve more than just the commercial banking system, the Federal Reserve Board enlisted the support of other major sectors of finance not under its jurisdiction. The high degree of concentration found in the life insurance and investment banking fields facilitated the process. Leading firms in these industries can surely be made aware that their actions cannot be cloaked in anonymity.

The thousands of units involved make for an entirely different situation in commercial banking, it may be argued. This was the main reason the Board of Governors gave in 1945 as to why the United States could not follow the example of England and Canada by entering into voluntary agreements with banks governing public debt monetization. However, the obstacle of having many commercial bank units should not be exaggerated. The forty-four largest commercial banks, each with deposits of half a billion dollars or more, control more than one-third of all deposits, and have outstanding just over half of all commercial and industrial loans. As a member of the Federal Reserve System, moreover, every one of these banks is subject to its direct influence.

Without the reinforcement of patriotic sentiments aroused by a military threat to the national security, voluntary measures are not likely to receive adequate support. Thus in the recent

inflationary period, a program along the lines of that of the Korean War period would not appear to have had much prospect of success. Equally crucial as a consideration would be the question as to what criteria could be spelled out in recent situations which would be meaningful. It is therefore difficult to agree with the conclusion of a Federal Reserve study made during the height of the VCRP campaign that "voluntary credit restraint is an extremely useful adjunct to general credit restraint measures and should be further developed for use *whenever inflationary pressures threaten depreciation of the dollar.*"²² Nor have Federal Re-

serve officials recently acted as if they agreed with the quoted statement.

Yet the achievements of the VCRP — limited at best — cannot be considered as marking the farthest boundary of usefulness of the device. To maximize its effectiveness in any subsequent utilization of voluntary restraint, the Federal Reserve authorities might do well to focus on the activities of the very largest institutions. Exhortations of the type employed in 1951-52 would enlist the support of thousands of small commercial banks. The latter would take example from the leadership of the handful of giants whom the authorities would call upon in a period of national emergency to face up to the responsibilities which great size inevitably must bring.

²² "Voluntary Action to Help Curb Inflation," *Federal Reserve Bulletin*, Vol. 37 (November, 1951), p. 1355. Italics added.

Benchmarks of Bank Mergers: A Sample Study

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THE post-World War II period has been marked by an increased number of commercial bank mergers in the United States. In the seven-year period 1950 to 1956, for example, a total of 1,019 individual banks ceased operations because of merger transactions.¹ Basically, the current bank-merger movement reflects the adaptation of commercial banks to changing economic conditions, particularly through the acquisition of "ready-made" banking offices.

This article embodies a sample study of a representative number of these merger transactions, with the purpose of establishing tentative benchmarks, or standards, which can be used in appraising the effects of bank mergers. Of

course, such benchmarks can be applied only as an initial part of a broader examination which allows due consideration for intangible, qualitative elements. The qualitative element is especially significant for the analysis of the effects of any particular bank merger.

The basic homogeneity of the banking industry, however, justifies the use of the sample technique. Horace Secrist, a close observer of banking developments, has referred to the enduring aspects of banking in these terms:

Fundamental interrelations in banking are persistent—they are the outcome in part of custom, legal restrictions and impositions, competition, and economic and trade demands. Banking, year after year, is conducted in much the same way, carrying over from time to time a substantial residue of practices and policies incident to a slowly changing business world. Adjustments in keeping with economic conditions and with particular needs are constantly being made, but these for the most part are met in a common way. No bank is wholly unaffected by nor is it able fundamentally to alter its position with respect to conditions as they are, conditions for which it with others of its class is responsible.²

¹ Computed from February issues, *Federal Reserve Bulletin*, 1947-57. For present purposes, a merger is defined as any form of combination whereby two or more banks are joined under a single charter and a single management. This definition would cover such specific ways of joining two or more operating companies as "consolidation," "absorption," and "purchase." Although there are legal and technical differences among the various forms of combination, the essential economic result is the same: combined banks are brought under one management and the stipulations of one charter.

² Horace Secrist, *Banking Ratios* (Stanford: Stanford University Press, 1930), p. 3.

Background of the Sample Study

The 166 mergers examined in this study include all of the merger agreements involving national banks during the sixteen-month period between January 1, 1954, and April 30, 1955.³ These transactions represented the absorption of 223 individual banks by 138 other banks. The Comptroller of the Currency submitted the exhaustive list of 166 mergers to a subcommittee of the House Judiciary Committee for use in the preparation of a report on corporate and bank mergers.⁴ The Comptroller's listing of merger agreements covers a period during which bank-merger activity increased in tempo. The timeliness and the comprehensive nature of the merger transactions provide a reasonable basis for pursuing a representative survey of bank mergers. The results of the study may suggest certain inferences that can be applied to the over-all bank-merger movement.

The *Rand McNally International Bankers Directory* provided the source for the balance sheets of each of the participating banks.⁵ The most recent

balance sheets of absorbing and absorbed banks were used, that is, balance sheets available immediately prior to the year in which a specific merger transaction occurred. This technique permits strict comparability of data and of derived ratios for acquiring and absorbed banks, in spite of the different dates on which the various merger agreements took place.

The computed ratios include the following: (1) the ratio of total assets of absorbed bank to total assets of absorbing bank; (2) capital-deposit ratios for both absorbed banks and absorbing banks; (3) the ratio of the absorbed bank's capital-deposit ratio to the absorbing bank's capital-deposit ratio; (4) capital-risk asset ratios for both absorbed banks and absorbing banks; (5) the ratio of total loans and discounts to total assets for both absorbed banks and absorbing banks. Finally, several of the latter ratios are combined to emphasize particular relationships.

Preliminary Observations

As an introduction to the presentation and analysis of the computed ratios, a few preliminary observations may be made. Of the 138 absorbing banks, 14 institutions were "repeaters," that is, acquiring banks that participated in more than one merger trans-

actions. The former approach, however, is beset with several serious limitations: the small number of banks responding to the questionnaire, the difficulty of extracting frank replies to survey questions, and the unavailability of operating ratios of individual banks. See Charlotte P. Alhadeff and David A. Alhadeff, "Recent Bank Mergers," *Quarterly Journal of Economics*, Vol. 69, No. 4 (November, 1955), p. 504, fn. 3.

³ In each case, at least one national bank was a party to the merger agreement, either in an absorbed or an acquiring capacity.

⁴ U. S. Congress, House, Committee on the Judiciary, *Corporate and Bank Mergers*, Interim Report of the Antitrust Subcommittee (Subcommittee No. 5), Pursuant to H.R. 22, 84th Cong., 1st Sess. (Washington: U. S. Government Printing Office, 1955), Appendix 2, especially pp. 177-84.

⁵ *Rand McNally International Bankers Directory*, First edition, 1955; Final edition, 1954; First edition, 1953. Ostensibly, the direct approach of the questionnaire technique could afford more significant data—both quantitative and qualitative—than that derived from an analysis of balance

Table 1. Absorbing Banks Participating in Two or More Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Name and location of absorbing bank	Number of merger transactions
Meadow Brook National Bank Freeport, New York.....	6
Anglo California National Bank San Francisco, California.....	4
First National Bank McKeesport, Pennsylvania.....	4
Franklin National Bank Franklin Square, New York.....	4
Peoples First National Bank and Trust Company Pittsburgh, Pennsylvania.....	3
United States National Bank Portland, Oregon.....	3
First National Bank Louisville, Kentucky.....	2
First National Bank Portland, Oregon.....	2
First Seneca Bank and Trust Company Oil City, Pennsylvania.....	2
National Bank of Westchester White Plains, New York.....	2
First Western Bank and Trust Company San Francisco, California.....	2
Mellon National Bank and Trust Company Pittsburgh, Pennsylvania.....	2
National City Bank Troy, New York.....	2
Seattle First National Bank Seattle, Washington.....	2
Total.....	40

Source: Tabulated from data contained in U. S. Congress, House, Committee on the Judiciary, *Corporate and Bank Mergers*, Interim Report of the Antitrust Subcommittee (Subcommittee No. 5) pursuant to H.R. 22, 84th Cong., 1st Sess. (Washington: U. S. Government Printing Office, 1955), Appendix 2, pp. 177-84.

action during the period. These 14 banks accounted for 40 out of the total of 166 merger transactions, or 24.1 percent of the total number of mergers involving national banks between January 1, 1954, and April 30, 1955. Table 1 lists the specific "repeater" banks and the number of merger agreements in which each participated.

On the basis of individual banks, the 166 merger transactions involved the absorption of 223 banks by 138 other

banks. The 138 absorbing banks comprised 124 institutions each transacting only one merger agreement, and 14 other institutions each transacting more than one merger agreement.⁶

⁶ Again it should be noted that a merger agreement or transaction implies the absorption of one or more separate banks by another bank at a particular time. Of the 166 mergers studied, 26 transactions involved the simultaneous absorption of two or more banks. The largest number of banks absorbed in any one merger transaction was 14.

Table 2. Number of Merger Transactions and Number of Absorbed Banks in Cities Recording Two or More Mergers Involving National Banks, Classified by Head-Office Location of Absorbing Bank, January 1, 1954 - April 30, 1955

Head-office of absorbing bank or banks	Number of merger transactions	Number of absorbed banks		
		Total	Within head-office city	Outside head-office city
Baltimore, Maryland.....	2	2	2	0
Chicago, Illinois.....	2	2	2	0
Dallas, Texas.....	3	3	3	0
Franklin Square, New York.....	3	5	0	5
Freeport, New York.....	5	5	0	5
Los Angeles, California.....	3	3	0	3
Louisville, Kentucky.....	2	2	0	2
McKeesport, Pennsylvania.....	4	6	0	6
Newark, New Jersey.....	2	2	1	1
New York, New York.....	3	3	3	0
Oil City, Pennsylvania.....	4	5	0	5
Philadelphia, Pennsylvania.....	5	8	2	6
Phoenix, Arizona.....	2	2	0	2
Pittsburgh, Pennsylvania.....	6	16	0	16
Portland, Oregon.....	5	22	1	21
San Francisco, California.....	10	23	0	23
Santa Cruz, California.....	2	2	2	0
Seattle, Washington.....	5	9	2	7
Troy, New York.....	3	3	0	3
Washington, D.C.....	2	2	2	0
White Plains, New York.....	3	3	0	3
Wilmington, Delaware.....	2	2	0	2
All cities.....	78	130	20	110

Source: Tabulated from data contained in U. S. Congress, House, Committee on the Judiciary, *Corporate and Bank Mergers*, Appendix 2, pp. 177-84.

In addition, certain cities throughout the United States exhibited greater merger activity involving national banks than did other cities. Stated differently, cities serving as the head-office locations of absorbing banks reflected a varied pattern in terms of concluded merger agreements. Table 2 shows those cities that recorded more than one merger transaction involving national banks during the period.

The list of 22 "multi-merger" cities reflects several factors. All of the particular cities are located in relatively heavy populated regions that contain

many surrounding towns or villages. Population movements to outlying areas or towns may serve as a factor stimulating the absorption of banks in these growing areas. This observation finds support in the results contained in Table 2. Of the total of 130 banks absorbed in the 78 merger transactions, 110 banks were located outside the head-office cities of the acquiring banks. Only 20 absorbed institutions were located in the same cities as the acquiring banks. The following cities, as shown in Table 2, witnessed mergers among banks within the same city.

Baltimore; Chicago; Dallas; Newark; New York City; Philadelphia; Portland, Oregon; Santa Cruz; Seattle; and Washington, D. C. These intracity mergers have occurred in localities containing relatively numerous banks.

The data of Table 2 also re-emphasize the varied nature of the several states' branch banking laws. The merger activity of cities located in the states of New York, Pennsylvania, California, and Oregon is relatively pronounced. Two of these states—New York and Pennsylvania—permit limited-area branch banking; California and Oregon allow state-wide branch banking. Merger operations to achieve "ready-made" branch offices can occur more freely in those states with more liberal branch banking statutes.

On the basis of head-office location of the absorbing bank, the remaining 88 merger transactions involved the absorption of 93 banks. Of the latter, 29 absorbed banks were located within head-office cities; the rest were located outside head-office cities. Cities recording more than one merger transaction showed a higher proportion of the absorbed institutions lying outside the head-office cities of the acquiring banks than did those cities recording a single merger transaction during the period.

Ratios Underlying Bank Mergers

Ratios afford a simple, but convenient, means for comparing different statistical magnitudes with one another, especially when the amounts show wide variation. The ratio technique permits the examination of important relationships among the different accounts within a specific bank's

balance sheet. In addition, the use of ratios allows for the appraisal of an individual bank's standing in relation to that of other banks of varying size.

In the appraisal of bank mergers, several ratios are useful in examining the over-all standing of a group of merger transactions. These ratios include the following: size ratio, which permits a precise view of the comparative asset sizes of participating banks; capital-deposit ratio, which affords a measure of the safety cushion provided by capital funds; capital-risk asset ratio, which is an even more precise and realistic device for judging capital adequacy in the light of credit risk confronting banks; loan ratio, which provides a rough gauge of the efficient and productive use of banking resources; earnings position, which offers a way of measuring an important stimulus for banks to enter into merger agreements.

The averages computed from the individual banks' ratios are useful primarily for studying the financial results of operations of individual banks, particularly those of banks participating in merger transactions.

Size Ratio

Generally, the acquired banks in the 166 merger transactions were considerably smaller than the absorbing banks. Of the 223 absorbed banks, only 15 were as large as or larger than the acquiring institutions, as is shown in Table 3. Stated differently, 194 of the absorbed banks, or 87.0 percent of the total number, each held total assets that were less than 50 percent of the total assets held by each of the absorb-

Table 3. Distribution of Individual Ratios of Total Assets of Absorbed Bank to Total Assets of Absorbing Bank, 166 Mergers^a Involving National Banks, January 1, 1954 - April 30, 1955

Ratio of total assets of absorbed bank to total assets of absorbing bank	Number of cases
0.0% - 9.9%.....	128
10.0 - 19.9.....	30
20.0 - 29.9.....	20
30.0 - 39.9.....	10
40.0 - 49.9.....	6
50.0 - 59.9.....	2
60.0 - 69.9.....	1
70.0 - 79.9.....	4
80.0 - 89.9.....	3
90.0 - 99.9.....	4
100.0 - 109.9.....	1
110.0 - 119.9.....	0
120.0 - 129.9.....	2
130.0 - 139.9.....	2
140.0 and over.....	10 ^b
Total.....	223

^a The 166 mergers involved the absorption of 223 banks by 138 banks. The total assets of each absorbed bank are expressed as a percentage of the total assets of the absorbing bank.

^b Includes the following ratios: 145.8, 173.1, 178.4, 184.7, 185.7, 332.0, 343.6, 547.1, 1382.7, 1710.4.

Source: Computed from data compiled by Comptroller of Currency, contained in U. S. Congress, House, Committee on the Judiciary, *Corporate and Bank Mergers*, Appendix 2, pp. 177-84.

ing banks. The arithmetic mean of all of the individual banks' size ratios was 40.9 percent; if the ten size ratios above 140 percent are excluded from the computations, a modified arithmetic mean of 18.5 percent is obtained.⁷

⁷ The modified arithmetic mean is the more significant figure in this case, since a straight arithmetic mean is greatly influenced by extremely high values.

It should be noted that arithmetic averages of the operating ratios of individual banks may differ from corresponding ratios computed from aggregate dollar amounts.

Table 4. Distribution of Capital-Deposit Ratios of Absorbed and Absorbing Banks Participating in 166 Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Ratio of total capital funds to total deposits	Absorbed banks	Absorbing banks
2.0% - 3.9%.....	2	0
4.0 - 5.9.....	21	17
6.0 - 7.9.....	70	51
8.0 - 9.9.....	61	44
10.0 - 11.9.....	28	32
12.0 - 13.9.....	13	8
14.0 - 15.9.....	12	4
16.0 - 17.9.....	6	6
18.0 - 19.9.....	5	1
20.0 - 21.9.....	3	1
22.0 - 23.9.....	0	0
24.0 - 25.9.....	0	0
26.0 - 27.9.....	2	0
28.0 and over.....	0	1 ^a
Total.....	223	165 ^b

^a Includes ratio of 37.0.

^b Although there were only 138 individual absorbing banks, the capital-deposit ratio was computed for the absorbing bank in each of the 166 mergers, thus obtaining the larger number of ratios for absorbing banks. One absorbing bank was engaged solely in trust operations and held no deposits.

Source: Computed from sample study.

The median of the 223 individual banks' ratios is 8.7 percent, indicating that at least one-half of the absorbed banks each held total assets that were 8.7 percent or less of the acquiring bank's total assets.

The comparatively small size of the absorbed banks underlines the use of the merger technique by the large banks to offset lagging growth positions.

Differences arise from the equal weighting accorded to each bank's figures used in calculating the averages, whereas the figures of many small and medium-sized banks carry little weight in aggregate dollar amounts.

Capital-Deposit Ratio

The distribution of capital-deposit ratios for absorbed and absorbing banks is similar for both types of banks. The data in Table 4 show that the arithmetic means of capital-deposit ratios are 9.5 percent for absorbed banks and 9.2 percent for absorbing banks; the median is 8.6 percent for each group of banks.

The capital position of banks participating in merger transactions during the period compares favorably with that of all Federal Reserve member banks for 1954, as Table 5 shows. The merging banks exhibited, on the average, higher capital-deposit ratios than did member banks with the exception of those member banks in the two lowest deposit-size classifications.

Table 5. Arithmetic Averages of Individual Capital-Deposit Ratios of Member Banks, 1954, and of Absorbing and Absorbed Banks Participating in 166 Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Type of bank and deposit-size (in millions)	Arithmetic average of individual banks' capital-deposit ratios
Member banks:	
\$ 1 and under.....	12.7%
1- 2.....	10.4
2- 5.....	9.1
5- 10.....	8.1
10- 25.....	7.6
25- 50.....	7.0
50-100.....	6.7
Over 100.....	7.2
All groups.....	8.8%
Absorbing banks.....	9.2%
Absorbed banks.....	9.5%

Source: Federal Reserve member banks' data taken from *Federal Reserve Bulletin*, June, 1955, p. 713; absorbing and absorbed banks' data computed from sample study.

In addition, the study of the 166 merger transactions indicated no pronounced tendency for absorbing banks to acquire banks with relatively higher capital-deposit ratios. Table 6 presents the distribution of the capital-deposit ratios of absorbed banks expressed as a percentage of the capital-deposit ratios of acquiring banks. In most cases, absorbing banks merged with institutions holding similar capital-deposit positions. Apparently, the enhancement of capital accounts via the merger

Table 6. Distribution of Capital-Deposit Ratios of Absorbed Banks Expressed as Percentages of Capital-Deposit Ratios of Absorbing Banks, 166 Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Capital-deposit ratio of absorbed banks expressed as a percentage of capital-deposit ratio of absorbing bank	Number of cases
20.0%- 29.9%.....	2
30.0 - 39.9.....	0
40.0 - 49.9.....	3
50.0 - 59.9.....	10
60.0 - 69.9.....	11
70.0 - 79.9.....	17
80.0 - 89.9.....	28
90.0 - 99.9.....	33
100.0 -109.9.....	22
110.0 -119.9.....	21
120.0 -129.9.....	17
130.0 -139.9.....	13
140.0 -149.9.....	10
150.0 -159.9.....	5
160.0 -169.9.....	10
170.0 -179.9.....	3
180.0 -189.9.....	1
190.0 and over.....	16 ^a
Total.....	222 ^b

^a Includes the following ratios: 206.6, 206.9, 210.6, 213.6, 214.6, 218.1, 220.8, 225.2, 234.0, 264.6, 272.2, 274.0, 275.6, 279.5, 313.3, 363.6.

^b One absorbing bank was engaged solely in trust operations and held no deposits. Hence, no capital-deposit ratio could be computed.

Source: Computed from sample study.

Table 7. Distribution of Capital-Risk Asset Ratios of Absorbed and Absorbing Banks Participating in 166 Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Ratio of capital funds to risk assets	Absorbed banks	Ratio of capital funds to risk assets	Absorbing banks
5.0%- 9.9%.....	4	8.0%- 9.9%.....	4
10.0 -14.9.....	49	10.0 -11.9.....	18
15.0 -19.9.....	67	12.0 -13.9.....	32
20.0 -24.9.....	41	14.0 -15.9.....	21
25.0 -29.9.....	17	16.0 -17.9.....	21
30.0 -34.9.....	19	18.0 -19.9.....	21
35.0 -39.9.....	6	20.0 -21.9.....	15
40.0 -44.9.....	7	22.0 -23.9.....	11
45.0 -49.9.....	5	24.0 -25.9.....	5
50.0 -54.9.....	1	26.0 -27.9.....	6
55.0 -59.9.....	2	28.0 -29.9.....	3
60.0 and over.....	5 ^a	30.0 -31.9.....	4
		32.0 -33.9.....	0
		34.0 and over.....	5 ^b
Total.....	223	Total.....	166

^a Includes the following ratios: 65.2, 68.2, 70.9, 80.4, 114.3.

^b Includes the following ratios: 42.3, 65.0, 34.9, 50.0, 173.0.

Source: Computed from sample study.

route was not a significant over-all factor in the merger transactions studied. This observation finds support in the computation of averages of the individual ratios contained in Table 6. The arithmetic mean is 114.5 percent; the modified arithmetic mean, which excludes the sixteen extremely high ratios above 190 percent, is 104.0 percent. The median ratio is 103.1 percent.

Capital-Risk Asset Ratio

Another meaningful ratio that can be used in appraising the merger transactions is the capital-risk asset ratio. Risk assets include all assets other than cash items and United States government securities. The exclusion of the latter two groups of assets permits a more realistic assay of the capital adequacy of banks, since capital funds

basically provide a cushion behind depositors' claims against banks.

Utilization of the capital-risk asset ratio marks an attempt to measure credit risk rather than capital-market risk. The former risk is concerned with the possibility of default or nonpayment of interest and principal. Capital market risk, on the other hand, refers to the likelihood of fluctuating prices and interest rates—from which government securities are not immune. Banks, however, hold mainly short-term securities, thus reducing the impact that any given change in interest rates will have on security prices. Even granting a possible appreciable drop in prices of government securities, banks would not necessarily be compelled to sell these securities. Member banks can borrow from the Federal Reserve Bank on their government securities

Such borrowing, which is often shunned by banks, is a privilege and not a right. As such, recourse to this approach is dependent on the Federal Reserve's appraisal of the specific conditions affecting member banks applying for accommodation.

A comparison of the distributions contained in Table 7 shows that, generally, the absorbing banks reflected lower capital-risk asset ratios than did the acquired banks. The true and modified arithmetic means of the absorbed banks' capital-risk asset ratios were 23.4 percent and 22.1 percent, respectively. Similar calculations for the acquiring banks afford a true arithmetic mean of 18.9 percent and a modified mean of 17.3 percent. The medians were 19.3 percent for absorbed banks and 16.7 percent for acquiring banks.

As a group, then, the absorbing banks acquired banks that on the average had a higher capital-risk asset position. Table 8 compares the average standing of absorbed and absorbing banks with the averages of individual member bank capital-risk asset ratios, by size of bank.

The arithmetic average of absorbing banks' capital-risk asset ratios is 1.8 percentage points less than that for all groups of member banks. On the other hand, the arithmetic average of absorbed banks' capital-risk asset ratios exceeds that for all groups of member banks by 2.7 percentage points. The absorbed banks' average ratio compares favorably with all but the averages for the two smallest size groups of member banks. On balance, then, absorbing banks as a group enhanced their

Table 8. Arithmetic Averages of Individual Capital-Risk Asset Ratios of Member Banks, 1954, and of Absorbing and Absorbed Banks Participating in 166 Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Type of bank and deposit-size (in millions)	Arithmetic average of individual banks' capital- risk asset ratios
Member banks:	
\$ 1 and under.....	28.4%
1- 2.....	24.7
2- 5.....	21.5
5- 10.....	18.8
10- 25.....	17.6
25- 50.....	16.2
50-100.....	15.4
Over 100.....	16.0
All groups.....	20.7%
Absorbing banks.....	18.9%
Absorbed banks.....	23.4%

Source: Federal Reserve member banks' data taken from *Federal Reserve Bulletin*, June, 1955, p. 713; absorbing and absorbed banks' data computed from sample study.

capital-risk asset positions as a result of their merging activity.

Loan Ratio

Also relevant is a comparison of absorbed and absorbing banks with regard to their operations in extending loans and discounts. As one writer aptly states: "loans . . . must be considered as a primary form of output of commercial banks."⁸ An examination of the proportion of total resources that the two groups of banks devote to loan production affords a rough gauge of efficiency "in utilizing resources in a

⁸ David A. Alhadeff, *Monopoly and Competition in Banking* (Berkeley and Los Angeles: University of California Press, 1954), p. 61.

Table 9. Distribution of Loan Ratios of Absorbed and Absorbing Banks Participating in 166 Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Ratio of total loans and discounts to total assets	Absorbed banks	Absorbing banks
0.0%- 4.9%.....	1	0
5.0 - 9.9%.....	6	0
10.0 -14.9%.....	9	2
15.0 -19.9%.....	18	3
20.0 -24.9%.....	28	11
25.0 -29.9%.....	32	23
30.0 -34.9%.....	37	27
35.0 -39.9%.....	37	37
40.0 -44.9%.....	28	37
45.0 -49.9%.....	19	19
50.0 -54.9%.....	5	4
55.0 -59.9%.....	3	3
Total.....	223	166

Source: Computed from sample study.

directly productive (i.e., earning) manner."⁹

Caution must be used in appraising loan ratios for different banks in that

... it is important to recognize that a comparatively small loan output by an individual branch or unit bank is not presumably evidence of output restriction deliberately framed to raise prices in local loan markets. The proportions of loans and other output are a function not only of market structures but also of portfolio policy and, indeed, of general business policy. What may appear on the surface as evidence of monopolistic restriction of output may be nothing more than a different judgment on sound bank management—and such judgment has basically no connection with concentration.¹⁰

The distribution of loan ratios for absorbed and absorbing banks given in Table 9 shows that a greater proportion of the acquiring banks fell into the higher loan ratio classes than did the

Table 10. Arithmetic Averages of Individual Loan Ratios of Member Banks, 1954, and of Absorbing and Absorbed Banks Participating in 166 Mergers Involving National Banks, January 1, 1954-April 30, 1955

Type of bank and deposit size (in millions)	Arithmetic average of individual banks' loan ratios
Member banks:	
\$ 1 and under.....	36.2%
1- 2.....	34.2
2- 5.....	32.5
5- 10.....	31.7
10- 25.....	31.6
25- 50.....	32.1
50-100.....	33.1
Over 100.....	34.1
All groups.....	32.7%
Absorbing banks.....	36.6%
Absorbed banks.....	31.8%

Source: Federal Reserve member banks data taken from *Federal Reserve Bulletin*, June, 1955, p. 713; absorbing and absorbed banks' data computed from sample study.

absorbed banks. In aggregate terms the arithmetic average of absorbed banks' loan ratios was 31.8 percent whereas that for absorbing banks was 36.6 percent. The medians were 32.1 percent for absorbed banks and 37.1 percent for absorbing banks.

As Table 10 indicates, absorbing banks as a group were more active lenders than any size group of member banks. Acquired banks, on the other hand, had an arithmetic average of individual loan ratios that was lower than those for all size groups of member banks other than the two intermediate size groups with deposits between \$1 million and \$25 million.

If it is granted that one of the basic functions of commercial banks is to accommodate the sound and legitimate

⁹ *Ibid.*, p. 55.

¹⁰ *Ibid.*, p. 76.

credit needs of borrowers, then the absorbing banks, as a group, indicate a more active performance of this function than do absorbed banks, as a group.

Earnings Position

A final test that can be applied in examining the bank-merger movement is that of earnings experience of participating banks. Relatively low earnings may serve as a stimulus for banks to enter into merger agreements — either as absorbing or absorbed institutions — as a way of expanding deposits and, hence, earnings.

No detailed earnings data were available for the banks participating in the 166 merger transactions studied. However, a study by the Federal Reserve Bank of Philadelphia of the bank-merger movement in the Third Federal Reserve District indicated that high capital-risk asset ratios were generally associated with low loan ratios and low earnings positions.¹¹

As a rough approximation, then, tentative conclusions might be made about the earnings positions of absorbed and absorbing banks by comparing the capital-risk asset ratios with the loan ratios for each of the two groups of banks. Tables 11 and 12 present the comparisons and indicate that in general a larger proportion of the absorbing banks with relatively low capital-risk asset ratios had relatively higher loan ratios than did absorbed banks. Initially, it can be concluded that ab-

sorbing banks, as a group, enjoyed more favorable earnings positions than did the group of absorbed banks. The latter statement would be subject, of course, to many specific exceptions when individual merger agreements are examined. The analysis of the merger transactions proceeds, however, in aggregate terms rather than on a case-by-case basis.

The acquiring banks represented a more active group of lending institutions with greater opportunities for more intensive and more remunerative use of capital funds.

Conclusion

The analysis of the 166 merger transactions involving national banks highlights the operation of several factors contributing to the bank-merger movement. Significant findings of the study include the following: (1) population movements to outlying areas or towns tended to stimulate the absorption of banks in growing suburban areas; (2) in most cases, the absorbed banks were appreciably smaller than the absorbing banks; (3) absorbing banks, as a group, exhibited no pronounced tendency to acquire banks with relatively higher capital-deposit ratios; (4) absorbing banks generally improved their capital-risk asset positions through mergers; (5) absorbing banks were generally more active lenders than absorbed banks; (6) absorbing banks, as a group, showed more favorable earnings positions than did absorbed banks.

These observations suggest that on balance, merger operations may provide the basis for a more intensive utilization

¹¹ Federal Reserve Bank of Philadelphia, "The Branch and Merger Movement in the Third Federal Reserve District," *Business Review*, January, 1955, p. 5.

Table 11. Absorbed Banks: Capital-Risk Asset Ratios Compared with Loan Ratios, 233 Banks Absorbed in 166 Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Capital-risk asset ratio	Number of banks	Ratio of loans and discounts to total assets											
		0.0% -4.9%	5.0% -9.9%	10.0% -14.9%	15.0% -19.9%	20.0% -24.9%	25.0% -29.9%	30.0% -34.9%	35.0% -39.9%	40.0% -44.9%	45.0% -49.9%	50.0% -54.9%	55.0% -59.9%
5.0% - 9.9%	4	..	..	..	..	..	..	..	..	1	2	1	..
10.0 - 14.9	49	..	..	..	1	7	13	12	14	8	10	1	..
15.0 - 19.9	67	..	..	..	5	8	6	5	9	13	6	1	1
20.0 - 24.9	41	..	2	4	4	2	1	3	11	4	..	2	1
25.0 - 29.9	17	..	1	1	3	4	2	4	1	1	1	..	..
30.0 - 34.9	19	..	1	1	3	2	1	2	1	1	1	..	1
35.0 - 39.9	6	..	..	..	2	2	1	2	1	..	..	..	..
40.0 - 44.9	7	..	1	1	..	1	2	2	..	..	..	..	..
45.0 - 49.9	5	1	1	1	..	1	..	1	..	..	..	..	..
50.0 - 54.9	1	..	..	..	..	1	..	..	..	..	..	..	..
55.0 - 59.9	2	..	2	2	..	3	..	..	..	..	..	..	..
60.0 and over	5 ^a	..	..	..	..	..	..	..	..	..	..	..	..
Total	223	1	6	9	18	28	32	37	37	28	19	5	3

^a Includes the following ratios: 65.2, 68.2, 70.9, 80.4, 114.3.

Source: Computed from sample study.

Table 12. Absorbing Banks: Capital-Risk Asset Ratios Compared with Loan Ratios, 166 Absorbing Banks in 166 Mergers Involving National Banks, January 1, 1954 - April 30, 1955

Capital-risk asset ratio	Number of banks	Ratio of loans and discounts to total assets											
		5.0% - 9.9%	10.0% - 14.9%	15.0% - 19.9%	20.0% - 24.9%	25.0% - 29.9%	30.0% - 34.9%	35.0% - 39.9%	40.0% - 44.9%	45.0% - 49.9%	50.0% - 54.9%	55.0% - 59.9%	
5.0% - 9.9%	4	..	..	..	1	..	..	..	2	1	..	..
10.0 - 14.9	54	..	..	..	3	..	5	15	14	5	4	..	
15.0 - 19.9	57	..	..	1	2	6	7	15	12	11	..	..
20.0 - 24.9	30	..	2	..	4	4	5	5	9	1	..	..
25.0 - 29.9	11	..	..	..	1	3	6	1	..	..	..	..
30.0 - 34.9	6	..	..	1	..	2	2	..	..	1	..	..
35.0 and over	4 ^a	..	..	1	..	..	2	1	..	..	..	..
Total	166	..	2	3	11	23	27	37	37	19	4	3	

^a Includes the following ratios: 42.3, 50.0, 65.0, 173.0.

Source: Computed from sample study.

of a community's banking resources. The merger route may permit a more active channeling of deposit funds into more diversified and remunerative lending areas, with resulting benefits for shareholders and public alike.

Of course, merging may have certain disadvantageous effects, particularly in

the development of undue banking concentration, with the possible promotion of monopolistic conditions. Thus, the appraisal of mergers is a difficult task that frequently requires the weighing of several different, and often conflicting, factors.

A Reconsideration of the *Tableau Économique*

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FOR STUDENTS of economics, Quesnay's *Tableau Économique* has been one of the major obstacles to a clear understanding of the works of the Physiocrats. The Physiocrats themselves placed such stress on the table that it is impossible to ignore its significance. However, the table when reproduced in either of two familiar forms is so confusing that it negates its purpose as an aid in the comprehension of Physiocratic doctrine and becomes a positive detriment. As Professor Alexander Gray candidly expressed it,

This may be the place for such notice as is unavoidable of the "Tableau Économique," in its time the crowning achievement of Quesnay and the Physiocratic school, now perhaps better reduced to an embarrassed footnote. Despite Dupont's assurance that the *Tableau Économique* is obscure only to those who are lacking in the power of comprehension, it may be doubted whether it will ever be anything but a vast mystification, a subject to be treated gingerly by commentators, rendered uneasy by the feeling that they do not quite understand what they are talking about.¹

There appears to be good reason to try to take the *Tableau* out of the realm of vast mystification. Those

economists who have mastered the table refer to it as one of the greatest contributions of all time. Schumpeter, for example, evaluates the *Tableau* as follows:

Clearly bearing in mind the state of affairs in our field at about 1750 we realize that we feel ourselves nowhere else in economic literature so near to creative genius as when we regard the conception of this work alone which, as Madame Pompadour correctly predicted, would appear to most critics at best as a harmless intellectual toy.²

Moreover, recent trends in economic theory make it imperative that the *Tableau* be studied and understood. Since the advent of the Keynesian system, macro models of precisely the same type as the *Tableau* have increasingly dominated economic theory. Part and parcel of this trend has been the acceptance of tax and fiscal policy as the major tool for the implementation

¹Alexander Gray, *The Development of Economic Doctrine* (London: Longmans, Green, 1931), p. 106.

²Joseph Schumpeter, *Economic Doctrine and Method* (London: Allen and Unwin, 1954), originally published as *Epochen der Dogmen und Methodengeschichte* (1912), p. 44.

of economic theory. This too was the premise of the Physiocrats, albeit with an emphasis and orientation that is a far cry from the United States in mid-twentieth century.

Still another similarity has become important in the past few months. The major problem confronting France in 1758, according to the Physiocrats, was that of accelerating the adoption of scientific agricultural principles, which required rapid capital accumulation. Their answer lay in the reform of the burdensome, feudal tax system and in the abolition of mercantilist privilege and protection. Free competition would result in a good price for agricultural products; a reformed tax system would permit sufficient capital to remain with the farmers — where it would do the most good to increase France's production and wealth, the basis upon which France's power and future glory depended.

There are certain limited parallels between France of 1758 and the United States of 1958. With Russia's growing importance in science and industry, American economists are likely to be more interested in our nation's productive development and less interested in the measurement of individual utility. Once again the problem of classical economics may come to the fore. If so, we could do worse than follow the lead of the biologists and study some of the early, simpler species of this type of economic theory. There is no better place to start than the *Tableau*; there is no better time than the two-hundredth anniversary of its publication.

I.

Recent historians of economic theory have preferred to summarize the table in much the same form as did Marx, who, not having an actual copy of the original *Tableau* available, simply sketched what he considered to be its major feature — a shorthand, circular flow diagram.³ Schumpeter, for example, refers the reader to Shigeto Tsuru's presentation in the appendix to Sweezy's *Capitalist Development*.⁴ But Tsuru's pictorial is a diagrammatic summary of Marx's version of the table. Roll, Rogin, Heimann, and Bell provide excellent literary summary descriptions of the results derived from the analysis of the table, but again, the circulation zigzag, for which Quesnay is so famous, is ignored.⁵ Henry Higgs, in his basic work in this field,⁶ resorts to a word picture of the table and the zigzag. His volume *The Physiocrats* consists of his public lectures

³ Karl Marx, *A History of Economic Theories*, translated from the French by Terence McCarthy (New York: Langland Press, 1952), pp. 63-68.

⁴ Joseph Schumpeter, *History of Economic Analysis* (New York: Oxford University Press, 1954), pp. 239 ff.; Shigeto Tsuru in Appendix A to Paul M. Sweezy's *The Theory of Capitalist Development* (London: Dobson, 1952), pp. 365-67.

⁵ Eric Roll, *A History of Economic Thought* (New York: Prentice-Hall, 1942), pp. 135-37; Leo Rogin, *The Meaning and Validity of Economic Theory* (New York: Harper and Brothers, 1956), pp. 17 ff.; Eduard Heimann, *History of Economic Doctrines* (New York: Oxford University Press, 1945), pp. 55-56; J. F. Bell, *A History of Economic Thought* (New York: Ronald Press, 1953), pp. 121-44.

⁶ Henry Higgs, *The Physiocrats* (New York: Langland Press, 1952), pp. 36-39.

given at the London School of Economics and Professor Higgs did not confuse his listeners with detailed figures of the *Tableau*.

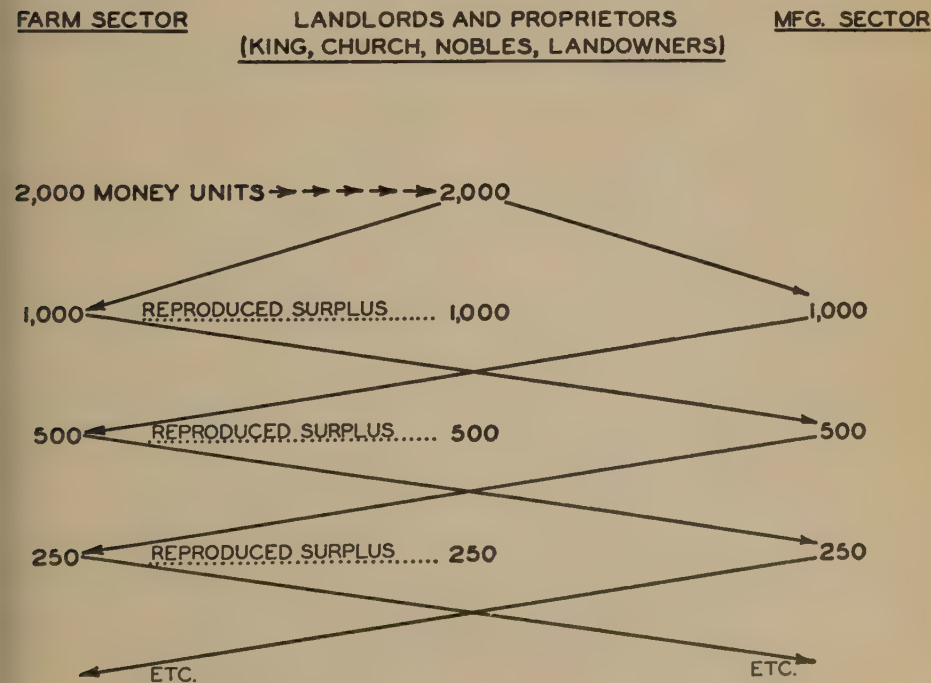
In this note a revision of the table is presented with full recognition that revision of a historic document like the *Tableau* is fraught with considerable dangers — dangers of doing violence to the original intent and purpose. If, however, the original document serves only to mystify and confuse even the most careful scholars, then revision can do little harm and may conceivably result in some clarification.

II.

Quesnay divided his model of the French economy into three parts, as illustrated in Table 1: agriculture (the productive sector); manufacturing (the sterile sector); and the proprietors (the landowners—the king, the church, and the noblemen). Imbued with the naturalistic spirit of an economy that was overwhelmingly agricultural, the Physiocrats insisted that all surplus (*produit net*) came from the land. They enunciated the obvious, that only land could bring forth new products — products which manufacturers

Table 1. The Original *Tableau*

This version of the *Tableau* is patterned after the reproduction of the original in Edwin Cannan's edition of Adam Smith's *Wealth of Nations* (New York: Random House, 1937), p. xl. The original *Tableau* started with the farmers paying the landlords a rent of 600 *livres*, a figure which had statistical importance for France in 1758, but which in our day is just as well rounded to even blocks of 1,000 money units.



could then change in form only. Manufacturing could not add anything to the total bounty of nature; it could only modify the shape or form of the original product. Thus the manufacturers added value to products, but only the value of the manufacturers' own subsistence. They could not add any more than what they themselves consumed. Only the farmers produced a surplus.

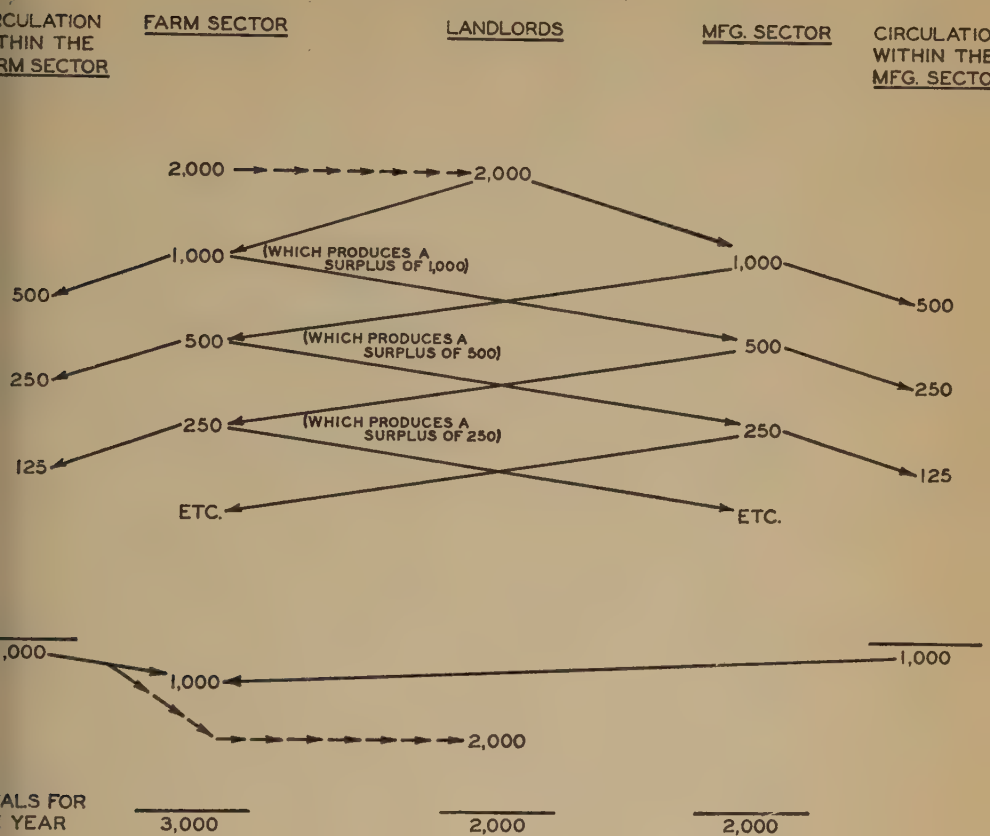
The Physiocrats believed that only the surplus should be taxed — that a single tax should be placed directly on the source from which all taxes ultimately would be derived. However, the tax would not be applied until the farmers had been excused from the stifling and smothering feudal levies. They favored a tax moratorium which would permit farmers to accumulate sufficient capital to put their farms on a scientific basis. Once the productive sector of the economy (agriculture) had put its house in order, the burden of supporting the crown, the nobles, and the church could easily be borne. France would assume her rightful place as the most powerful and prosperous nation in Europe. The source of the true wealth of the nation, its productive sector, would prosper and thrive. The farmers would produce enough surplus to support the luxuries of the court and the nobles, to provide for the tithes of the church, and also to depreciate properly all fixed and circulating capital.

The fixed assets required for farming (*avances primitives* — farm buildings, roads, drainage, equipment, and livestock, for example) and the circulating or working capital (*avances an-*

nuelles — seed, food and clothing and subsistence for the farmer's family, and so on) had to be maintained at all costs. Without the necessary capital, the entire economy would run down. The farmers would not get their proper yields, the surplus would be insufficient to support the court and the church, and capital would be further and further depleted. As the nation lived off its capital, it would get into ever worse straits. However, if only the king would permit the economy to reach the balanced position exemplified by Quesnay's *Tableau Économique*, peace and prosperity would descend upon France.

The *Tableau Économique* is an economic model of the French economy. Quesnay traces the production and circulation of this three-sector economy through one period — a year extending from one harvest to the next. The confusion in the original table results from Quesnay's showing three different kinds of transactions all alike, and all on the same table. The first is the payment of the surplus from the farmers to the proprietors and landlords. This is a rent, tax, or tithe payment, with the farmer receiving no tangible goods in return. The second kind of transaction occurs when one sector purchases goods from another sector — the usual circulation transaction where goods go in one direction and money in the other direction. For example, farmers purchase manufactured goods — money goes from farmers to manufacturers in return for goods processed by the manufacturers. The third type of activity is the creation of the surplus by the land (*reproduisent net*). It is the por-

Table 2. The Revised *Tableau*
(Circulation of money only)



trayal of the creation of this surplus that is the source of much confusion in the *Tableau*.

What Quesnay intended is quite clear. He wanted to show that every dollar spent with the farmers (the productive sector) gives rise to a surplus of a dollar. However, every dollar spent with the merchants and manufacturers (the sterile groups) is simply respent in circulation without giving rise to any surplus. Thus, the greater the farmers' income, the greater the surplus for the next year. The greater

the merchants' and manufacturers' income, the less the surplus for the next year. But on the table, the "reproduced surplus" (*reproduisant net*) appears as a payment from the farmers to the proprietors — over and above the original payment. Quesnay's purpose in showing the "reproduced surplus" was clearly not to make it a duplicate payment, which would make the table inconsistent, but simply to show the physical return of an investment in agriculture.

The fourth type of transaction also

gives rise to some confusion in the table, but the source of the confusion is omission, rather than commission (as was the case with the surplus). It is the transactions within a sector, that is, farmers buying from other farmers, manufacturers buying from other manufacturers. Quesnay assumes that proprietor exchanges with other proprietors are simply transfers, with no new production going in the direction opposite to the flow of money. But in the case of both the farmers and the manufacturers, Quesnay assumes that half of their income is respent within their own sectors. In the case of the manufacturers this amounts to the sum necessary to buy from the farmers the raw materials necessary for the next year's production. In the case of the farmers it amounts to half the sum necessary to pay the proprietors the rent, tithes, and taxes. The other half of the rent money comes from the raw material purchases by the manufacturers.

The revised version of the *Tableau* (Table 2) differs from the original in two important ways: First, the creation of the surplus at each stage in the circulation is placed in parentheses; it is not treated as an actual circulation payment from farmer to proprietor. The payment of rent, tithes, and taxes takes place only at the beginning of the period (although the revised table shows it twice, at the beginning and

at the end to indicate how the next period's circulation would get under way. The second difference between the original and the revised tables is that the new table shows how the farmers and the sterile groups spend all their income at each stage of circulation. The original *Tableau* shows the zigzag with each group trading only half as much with the other at each subsequent stage of circulation. What happens to the other half of its income is not shown. As it appears in the *Tableau*, the zigzag is an example of a sectorial multiplier, with the value of 2 (or, a propensity to spend of .5). One-half of the previous transaction is withdrawn from "productive" circulation for the next round. The revised table shows that the amount withdrawn is circulated within the respective sectors, and then used at the end of the period to settle accounts with the other sectors. The manufacturers use their money by purchasing from the farmers the raw materials to restore their circulating capital. The farmers use their money, plus the "raw material" money from the manufacturers, to pay the rent, tithes, and taxes.

These revisions appear to be completely within the spirit of the *Tableau*. From Quesnay's word explanation of the table (*explication*) it is obvious that the *reproduisant net* should not be interpreted as a money payment. It

shows, in real terms, the 100 percent return resulting from a capital investment in agriculture. In Quesnay's words, the expenditures (*dépenses*) of the productive sector are explained as follows:

[the receipts] are spent by the Farmer, half upon the consumption of products furnished by this same class, and the other half upon clothing, implements, tools, &c. which he buys of the sterile class. And they arise again with the net product.

Similarly, Quesnay explains the expenditure of the sterile group as:

half on productive expenditures in the purchase of subsistence, raw materials, and for foreign commerce; the other half is distributed among the sterile class itself for living expenses, and to restore the *avances*.¹

The second major revision is also in keeping with Quesnay's design. The *Tableau* reveals how half of the income is respent with farmers — or as Quesnay phrased it, "*moitié passe ici*" ("half passes here"). So farmers have one-half of the money income with which to pay the next year's rent. But the circular flow should show how the farmers obtain the needed additional money income to pay the full rent. The revised table makes the assumptions (1) that the *avances* required by the sterile group must be purchased from the farmers; (2) that the *avances* are

purchased only once a year; and (3) that the 1,000 money units involved in this transfer pass from the farmers to the landlords to complete the rent payment. If these occur, then the landlords have the same amount of currency they started with, 2,000 money units, and the circulation process (money and goods) for the next year can once again get under way.

From Quesnay's explanatory notes, it is obvious that he had a fairly elaborate economic model in mind — far more elaborate than the bare bones provided in the *Tableau*. But the table itself does not permit a very extended economy. For example, although Quesnay writes in terms of "merchants," "commerce," and "foreign trade," the *Tableau* actually assumes a closed economy, with no foreign trade. Similarly, to be internally consistent, the table assumes a stationary state and competitive markets, with money as a neutral *numéraire*. The revised table is in keeping with this more limited three-sector model.

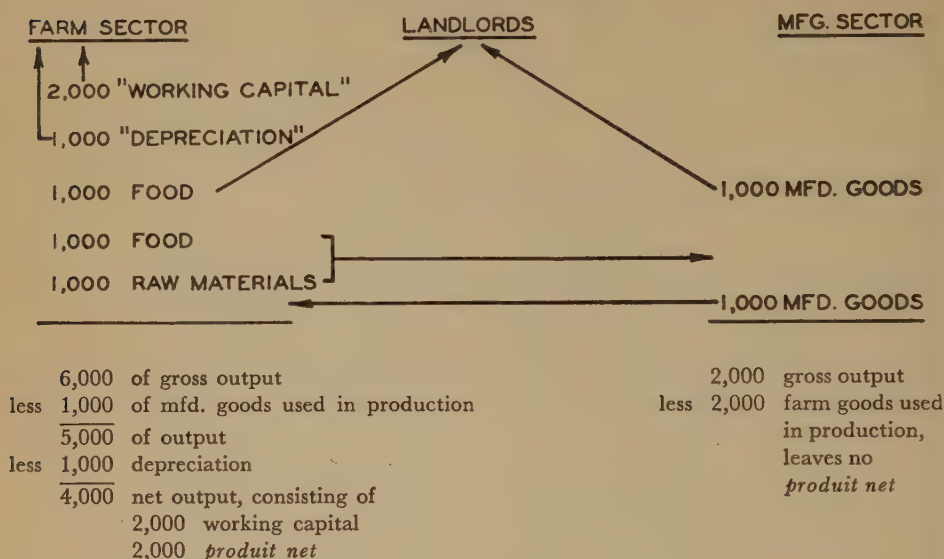
III.

Many other versions of the *Tableau*, variations on this same theme, could be developed. One such alternative, for example, would be to reduce the amount of currency to 1,000 units, increase velocity, and have the landlords make two annual purchases instead of one. Similarly, a new zigzag scheme

¹ François Quesnay, "Explanation of the Economic Table," in A. E. Monroe, *Early Economic Thought* (Cambridge: Harvard University Press, 1924), pp. 341-48.

Table 3. The Revised *Tableau*

(Circulation of goods only)



Gross national product:

3,000 food (produced by farmers)	
2,000 mfd. goods (half produced by farmers as raw materials and half by mfrs. in processing)	
1,000 depreciation (produced and used by farmers)	
6,000	

National income:

2,000 <i>produit net</i> (consumed by landlords)	
2,000 working capital (consumed by farmers)	
1,000 subsistence (consumed by manufacturers)	
5,000	

Total transactions between sectors (the 3,000 advances within farm sector not included):

2,000 paid to landlords by farmers as <i>produit net</i>	
4,000 between farmers and manufacturers	
1,000 purchases of raw materials by manufacturers from farmers	
7,000	

Ratios:

- (1) "Surplus" ratio, the *produit net* as a percentage of working capital:
 $2,000 \div 2,000 = 100$.
- (2) Velocity of money between sectors: $7,000 \div 2,000 = 3.5$ times per year.
- (3) Propensity to consume of farm and mfg. sectors: .5 or a multiplier of 2.

could be worked out so as to show a continuous series of purchases of raw materials by the manufacturers. But these, and other similar models, would change the original *Tableau* far more than does the revised table. The proposed revision is one that closely parallels the original, is consistent, is easily read, and does not violate Quesnay's analytical purpose.⁸

It is also helpful, in connection with a reconsideration of the *Tableau*, to summarize the movement of goods in a form that is similar to current Department of Commerce national income concepts. (See Table 3.) To make this summary complete, and as simple as the revised table, several additional assumptions are necessary: (1) All manufactured goods purchased by the farmers are used in the productive process

of farming, and *not* for final personal consumption. Thus, they should be treated as intermediate goods and should not be included in the national income accounts. (2) None of the manufactured goods used in manufacturing pass through the process of circulation. They are not used for final personal consumption but are used up in the process of manufacturing. Thus, they are also intermediate goods that do not show up explicitly in the national income accounts.

IV.

The question remains, Does the revised table help us to understand the Physiocratic system? It shows most clearly that, given the Physiocratic assumptions and perspective, the *produit net* is completely dependent upon the farming sector of the economy. The sterile manufacturing sector does not in any way contribute to the surplus, upon which the strength and prosperity of France supposedly depended. So far as the *produit net* originated and arose from the capital advanced in the farming sector, proper channeling of capital into agriculture (instead of manufacturing) would have led to the greater glory of France and the king.

The revised table does not provide any new insights into Physiocratic thought or into the Physiocratic model of the economy. It does, however, permit one to see immediately how the

⁸ There is also the very real possibility that Quesnay did not intend the *Tableau* to be an actual model of the economy, in the same sense that "model" is used today. Perhaps he meant it to be no more than a skeleton outline of an economic theory, which would permit the reader to observe, in general pictorial terms, the source of the *produit net*. If this is true, then a literal explanation, of the type attempted here and in all discussions of the Physiocrats, is out of order. The figures, perhaps, were never meant to add up or to be consistent. Such an interpretation would explain, among other things, why Quesnay could ignore the *reproduisant net* in his explanation of the table — the *reproduisant net* was simply a pictorialization of the real growth of the surplus and was not confused with the *produit net* (in money terms), which the farmers paid to the landlords.

Tableau "proves" that the farmers were the sole source of the *produit net*. Moreover, the circulation of money, as depicted by the *Tableau*, is made consistent with the movement and consumption of goods. The sum of the total transactions equals the total requirements of a stationary state and permits a clear-cut grasp of the Physio-

cratic analytical model. On the occasion of the two-hundredth anniversary of the founding of "scientific" economic thought, one is once again struck by the brilliant and insightful conception of Quesnay's consistent, clear, and masterful model of the circulation of money and goods in the French economy.

Federal Agencies and the Creation of Gross National Product*

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FEDERAL AGENCIES have been an integral part of the United States economy for more than thirty years. Beginning with the Farm Credit Administration (FCA) in 1921, Congress has created special agencies as the need dictated to cope with problems which were beyond the scope or ability of private enterprises and which required Federal intervention. By 1948 (the year for most of the statistics of this study), there were eight Federal agencies giving financial aid to the housing, farm, and business sectors of the economy (see Table 1).¹ The purpose of this article is to estimate the contribution Federal aid agencies make to gross national product (GNP), so as to place these

little-understood organizations in perspective.²

It should be emphasized that this study covers the years 1946-50 and that changes may have been made in the organization, financing, and functions of these agencies. Specifically, the Reconstruction Finance Corporation is now in the process of liquidation and the Federal Home Loan Banks are no longer part of the Housing and Home Finance Agency. With these exceptions, the findings remain valid.

The justification for considering these eight agencies as a group is that they have had important functional similarities which distinguish them from other Federal institutions. (1) All eight agencies offer financial aid or cause private financial aid to be ex-

* This article is based on the author's unpublished doctoral dissertation, "The Inflationary Impact of Eight Federal Aid Agencies" (Yale University, 1953). Funds to complete this article were provided by the Colgate University Research Committee. The author is indebted to Richard Ruggles for his criticism of an earlier draft.

¹ Fiscal 1948 was selected because it was the only "normal" year between the end of World War II and the Korean War.

² It has been argued elsewhere that Federal agencies tend to influence the pattern of interest rates as well as the availability of capital. See R. Freedman, Jr., "Federal Credit Agencies and the Structure of Money Markets, Interest Rates and the Availability of Capital," *Quarterly Journal of Economics*, Vol. 69, No. 3 (August, 1955), pp. 421-44.

Table 1. Functions and Financing of Eight Federal Agencies, 1946-50

Agency	Sources of funds	Major functions
1. Housing and Home Finance Agency		
Federal Home Loan Banks	Borrowings on the market.	Lend to privately owned members of FHLB system, largely Federal Savings and Loan Associations.
Public Housing Administration	Borrowings from U. S. Treasury; appropriations for deficits; construction loans refinanced by public security sales.	Lends to local housing authorities for low-cost housing projects; subsidizes operating losses.
Federal Housing Administration	Insurance premiums; fees; appropriations for certain administrative purposes and capital in insurance funds.	Insures home mortgage loans of private lending institutions.
Federal National Mortgage Association	Up to 1950, borrowings from RFC. (Since 1950, borrowings from the U. S. Treasury.)	Purchases and sells FHA insured and VA guaranteed and insured mortgages of private lenders.
2. Farm Credit Administration		
Banks for Cooperatives	Treasury capital purchases; borrowings from FICB's; public issues of debentures.	Make short-, medium- and long-term loans to cooperative farm associations for operating capital, purchase of facilities, commodity handling.
Federal Intermediate Credit Banks	Debentures sales to public; Treasury-owned capital stock; a revolving fund; other borrowings from private sources and Federal Reserve.	Make short- and intermediate-term self-liquidating loans to production credit associations, live-stock loan companies, and commercial banks.
Federal Land Banks	Bond sales on open market; capital stock sales to borrowers; borrowings from commercial banks.	Make long-term direct loans to farmers to purchase land, equipment, etc.
Production Credit Corporations	Capital stock held by U. S. Treasury.	Supervise production credit associations; holds PCA capital stock; do not lend.
3. Commodity Credit Corporation	Borrowings from U. S. Treasury; appropriations to cover deficit.	Supports farm prices by purchase of agricultural products.
4. Rural Electrification Administration	Borrowings from the U. S. Treasury.	Makes long-term loans to rural electrical cooperatives for construction of electrical facilities. (Since 1950 lends to rural co-ops for telephone systems.)
5. Farmers Home Administration	U. S. Treasury appropriations.	Makes intermediate- and long-term loans to subsistence farmers for farm ownership, water facilities, farm operation, home construction and repair, disaster, and production.

Table 1. Functions and Financing of Eight Federal Agencies, 1946-50 (Continued)

Agency	Sources of funds	Major functions
6. Reconstruction Finance Corporation	Borrowings from U. S. Treasury; capital stock purchases by U. S. Treasury.	Lends to public and private agencies where credit is not available at reasonable rates. Term lending (up to 10 years) to small business.
7. Export-Import Bank	Borrowings from U. S. Treasury; capital stock held by U. S. Treasury.	Lends to business for export and import where the risks are too great for private capital; lends to foreign countries or businessmen for economic development; guarantees currency convertibility for American investors in foreign countries.
8. Veterans' Administration	U. S. Treasury appropriations.	Partially guarantees and insures private home and farm mortgages and loans to start businesses.

tended to private persons. (2) All operate in fields ordinarily intended to be the exclusive domain of private enterprise. They exist to perform functions usually performed by private institutions, and their operations are subsidized in varying degrees. (3) All agencies hope in time to recover their outlays (capital plus interest, minus subsidy).

The desire to recover original outlays suggests some significant differences among the eight agencies, since they have different expectations as to repayment. Except for minor subsidies, some agencies, for example the Farm Credit Administration, are business-type lenders to the same degree as private banks. Sometimes such an agency has even more conservative lending policies than private institutions. Other agencies, such as the Commodity Credit Corporation (CCC), while delighted to accept repayment, do not consider the possibility of re-

payment an important condition for the original extension of aid. An anticipated subsidy of 100 percent of aid would not deter its lending. Between these two extremes, the remaining agencies vary with respect to the amount by which they are willing to subsidize aid recipients.

The question of subsidy is relevant to the question of income creation by agencies in that the *necessity* for subsidy suggests areas in which private enterprises cannot operate and further indicates that agency aid is a "net" addition to gross national product over and above what is created in the private sector.

Limiting the meaning of "income creation" as we do here raises two issues. (1) If such agencies operate during periods of full employment, how can they be said to create real income rather than merely to add to inflationary pressures? (2) Assuming that agencies do contribute to inflation in

such periods, what criteria ought to be applied so that their activities may be curtailed, if desirable?

The answer to the first question is that the activities of income-creating government agencies are no more inflationary than those of other spending units. Inflation, of course, can be prevented only by reducing spending somewhere in the economy. Federal agencies are only one of a large number of financial institutions that contribute to inflation and they contribute real and money income in the same way as private spenders.

In addition, the consideration of the second issue may lead to the conclusion that there is no greater a priori reason to contract Federal agency operations than to curtail spending in the private sectors. In brief, Congress has decided, for reasons whose validity need not be discussed here, that aid recipients have legitimate claims on scarce resources, even in periods of full employment. This is the reason for Congress' willingness to subsidize agency operations. Thus a presumption is created that unless agencies are actively competitive with private organizations, the pattern of resource allocation consequent to agency activities is "desirable." One need not agree with Congress' judgment, but a researcher is precluded from asserting, without further investigation, that it is the activities of Federal agencies that distort resource allocation and that they should be given special treatment during periods of inflation. For present purposes, therefore, it is sufficient to measure the income-creating ability of Federal agencies without passing judgment upon

whether they lead to poor resource allocation or economic instability.

Four Problems in Measurement

The problems of estimating the contribution of agencies to gross national product are difficult to resolve and must be handled in all too arbitrary a fashion. To declare that Federal agency aid makes a "net" addition to GNP is to assume that: (1) agency aid does not compete with private spending; (2) the secondary effects of such aid can be measured accurately, both via the multiplier and by its effects upon changes in the expectations of private investors; (3) one can accurately estimate not only the "net" gain of the aid, but also the loss in income that comes from repayment by aid recipients; and (4) it is possible to measure the income effects of agency borrowing and repayment, both in the open market and at the Treasury. Each of these problems requires further discussion.

Competition with Private Institutions

The fundamental problem in determining whether agency aid makes a "net" addition to income is whether it is complementary to or competitive with private institutions.³ If agencies compete, their aid may create income but the income created is not a *net* addition to gross national product. If agency aid is complementary, it does not reduce private spending and makes a *net* addition to GNP. Problems arise

³ Whether agencies should or should not compete need not be discussed here. The issue is whether in the absence of the agency national income would have been smaller.

because agency aid may be both competitive and complementary. For example, Production Credit Associations (PCA's) are sometimes considered competitive with private country banks. If the PCA's ceased to exist, country banks would probably increase the amount of their loans. That the country banks would assume all of the loans released by the PCA's is doubtful, since the PCA's probably accept risks unacceptable to private lenders.⁴ Hence there would be some reduction in lending, although the extent cannot be determined, if PCA activities were curtailed.

Other FCA lenders — the Federal Intermediate Credit Banks (FICB's) and Banks for Cooperatives (BC's) — probably are also competitive with private institutions to a degree. The FICB's, almost the sole source of financing for the PCA's, do act as bankers' banks for certain private institutions. However, both the PCA's and the private lenders could probably, in the absence of the FICB's, find other sources of financing.

The justification for the Banks for Cooperatives seems to lie as much in a social policy favorable to cooperatives as in the credit needs of such institutions. The larger marketing cooperatives surely would not suffer a lack of funds in the absence of these banks. However, as with the FICB's, no clear answer can be given to the question of what would occur should the Banks for Cooperatives cease to exist.

The same holds for the Federal Savings and Loan Associations (FSLA's),

⁴ Some private lenders may be too small to handle all of the new business which they would acquire or they may feel that it is not worth trying to get.

the private protégés of the Federal Home Loan Banks (FHLB's).⁵ These institutions are primarily financed by depositors and private lenders even though they do borrow from the FHLB's. Historically these institutions (like the farm lenders) have performed their greatest service in areas not well served by private lenders. Partly because of the development of a "national" money market, and partly because the FSLA's are now financially mature, the removal of FHLB support would not greatly alter the flow of mortgage loans. If the FSLA's ceased to exist, many areas in the United States where specialized lending institutions are scarce would find mortgage credit reduced.

The RFC may also have been a competitor with other sources of capital. The RFC loaned only where capital was unavailable at "reasonable rates." The RFC did not require the borrower to secure funds if they were available only at "unreasonable" rates or if they could be secured only by equity financing or by canvassing banks in other areas.

The remaining agencies are less likely to compete directly with private enterprise and are likely to make a "net" contribution to gross national product. The Farmers Home Administration primarily aids marginal and submarginal farmers by repayable loans and subsidies. Aid is directed toward farmers who it is felt would graduate to the

⁵ The Federal Housing Administration, Veterans' Administration, and Federal National Mortgage Association do not compete in that their task is to bring about private lending. They are credited with these results in the measurement of GNP.

good-risk class and would eventually shift to private financing. When originally rendered, Farmers Home Administration aid is not competitive with private credit.

The Public Housing Administration (PHA), subagency of the Housing and Home Finance Agency (HHFA), which is responsible for low-rent housing projects, deliberately subsidizes low-income tenants. This agency prescribes below-cost rents and pays the losses incurred.⁶ Arguments rage as to whether this constitutes competition with private home builders. It does not seem likely that such housing interferes with new construction since the tenants' incomes are too low for them to build or buy new housing. It probably does decrease the rental income of tenement and slum owners whose tenants leave. However, the value of construction plus PHA loss subsidy, assuming tenants' rental payments remain unchanged as to amount, probably accurately reflect PHA contributions to GNP.

Whether the Rural Electrification Administration (REA), in lending to rural electrical and telephone cooperatives, competes with the privately owned public utilities is also the subject of much controversy. In any event the REA does give a great deal of free assistance, including technical and ad-

ministrative advice, to the local cooperatives. A further subsidy is involved because the REA lends for long periods of time (up to forty years) at the same rate at which it borrows from the Treasury without extracting a risk premium on what is, in many instances, a risky loan. The argument is that the success of a cooperative does depend to some degree on subsidy, otherwise the area would not have been bypassed by private utilities. Often the failure of public utilities to build electrical facilities is either simply lack of enterprise or business acumen. It is doubtless true that were there no REA, many areas of the country would be without electrical and telephone service.

The Commodity Credit Corporation (CCC), lender on a nonrecourse basis to support certain agricultural commodity prices, is clearly a device for the creation of income. Income is created equal to the amount of the subsidy plus any increase in income due to the increase in the price of unsupported competitive commodities minus income losses, if any, due to the decline in the prices of complementary commodities not supported.

The Export-Import Bank (Exim Bank) is primarily concerned with financing the exports and imports of goods which, because of the hazards of long-term international credit, cannot be financed privately. Since international lending involves risks which are essentially uninsurable, such as war, internal upset, and political intransigencies, and since the borrower needs to prove that private credit is unavailable before receiving a loan, it is unlikely

⁶ PHA funds pay for construction. The government is "reimbursed" by the sale of PHA-guaranteed bonds on the bond market. The PHA pays off the bondholders' principal plus interest at the guaranteed rate. This involves a subsidy since rental income is designed to be too small to cover all these costs. The interest payment to private bondholders is a subsidy to bondholders since the government finances the original construction costs and guarantees the interest.

that Exim loans are competitive with private ones.⁷

Multiplier Effects

In addition to the problems of agency competition with private enterprise, the question arises of the degree to which agency activities dampen or spur secondary spending. Once the direct increase in GNP is measured, a multiplier may be applied. Such a multiplier will account for changes in investment, foreign trade, and government expenditures as a consequence of changes in GNP. This study will use a multiplier for the year 1948. However, a mechanical application of a multiplier can be misleading because private and foreign investments are not simple functions of income but depend on expectations and interest rates as well.

It has already been suggested that agencies tend to influence interest-rate patterns. To the extent that investment is related to interest rates, and to the extent that agencies are responsible for lowered rates of interest, agencies spur secondary spending.

Credit agencies may improve expectations by the certainty of the availability of their credit. Farm Credit Administration agencies and the Federal Home Loan Bank system are specifically concerned with providing adequate supplies of credit. Thus farmers and home builders, dependent on the expectation of continuous and dependable credit flows, may be encouraged to invest.

⁷ To the contrary, if the Exim Bank can get a private lender to extend all or part of the required credit, the bank will agree to take over the privately held share at the will of the lender.

The influence of other agencies in all probability is to improve expectations, but there are counterarguments. For example, it is possible that private utilities refrain from investing because they abhor Rural Electrification Administration loans to cooperatives as proof of the threat of "creeping socialism." However, dampened expectations in this direction may be offset by the optimism of appliance manufacturers contemplating growing markets due to low rates or the penetration of electricity into areas hitherto unserved.

The same kind of argument may be applied to the Public Housing Administration. Here too, it may be argued that PHA activities damage the morale of private builders although the post-war record of construction belies this contention. Of course one may insist that the housing boom would have been greater in the absence of the PHA, but this defies proof.

Analysis of the remaining agencies is the same as for the REA and PHA. Aside from the question of direct competition, increased incomes due to agency lending should improve expectations. On the other hand expectations may be damaged if agencies seem to threaten the solvency of the government or the institution of free enterprise.

Conceptually, it is difficult to isolate what one *means* by speaking of agency contributions to GNP because private spending and agency aid are so completely interrelated.

Effects of Repayment

When measuring agency aid the question arises as to the treatment of

repayment of funds loaned by agencies in prior years. From the accounting point of view, the question is whether to measure only "loans written" during the year or to subtract "loans repaid" from "loans written" to get "change in loans outstanding." Clearly, failing to account for repayment overstates agency contributions to GNP since these funds, neutralized by repayment, might have been spent to create income. For purposes of computation "change in loans outstanding" is the relevant measure.

An analysis of the utilization of agency funds aids in determining agency contributions to GNP. But since funds for repayment may come from many sources, such as borrowings from banks and other agencies, sales of real or financial assets, or out of income, it is impossible to measure the reduction of income occasioned by the necessity to repay agencies. In this study, for lack of better information, and because most agency aid is designed to be repaid out of income earned with agency aid, it will be assumed that repayments are income reducing in the same degree as the original aid was income creating.⁸

Money Market Effects

A further complication in the measurement of gross national product at-

⁸ Most aid by agencies is designed to increase the earning power of the recipient. The recipient presumably repays out of earned income. Since many recipients are individuals and individuals have a high marginal propensity to consume, repayment reduces consumption. If the recipient is a corporation, repayment may not reduce income quite so much since it is uncertain what proportion of the corporation's earnings would have been reinvested.

tributable to agencies arises because agencies borrow funds which might have been spent for income creation by others. Repayments by agencies have the reverse effects.

Agencies borrow the bulk of their funds from commercial banks, the open market, and the Treasury. If the banking system has excess reserves, or if the Treasury has a cash surplus or borrows either from the Federal Reserve or from the public when there are excess reserves in the banking system, no other user is deprived of funds. In such instances, agency aid may result in a net addition to GNP. This is true only if, when agencies borrow from the Treasury or the public, the Treasury borrows from the Federal Reserve which creates new money or uses excess reserves.

If the money market tightens as a consequence of agency borrowing from the public or as a consequence of Treasury borrowing from the public on behalf of agencies, some agency income creation is likely to be at the expense of those who, because of higher interest rates or more stringent terms, are unable or unwilling to borrow.

Agency repayment eases the money market and aids private borrowers when the effect is to reduce interest rates or relax the conditions of lending.

Further, agencies sometimes borrow in excess of lendings and accept repayments from their debtors in excess of their own returns to agency creditors. These funds are usually deposited in the Federal Reserve. Such hoarding of funds tends to tighten the money market and to affect private financial transactions adversely.

It is difficult to assign causality to agencies when measuring their contri-

Table 2. Change in Aid Outstanding by Federal Agencies, Fiscal 1948^a
(Millions of dollars)

Agency	Increase	Decrease
Housing and Home Finance Agency:		
Public Housing Administration.....	4.7 ^b	
Farm Credit Administration:		
Federal Intermediate Credit Banks.....	18.3 ^c	
Banks for Cooperatives.....	75.6 ^d	
Federal Land Banks.....		55.1 ^e
Commodity Credit Corporation.....		177.9 ^f
Rural Electrification Administration.....	224.5 ^g	
Farmers Home Administration.....		62.9 ^h
Reconstruction Finance Corporation.....	100.1 ⁱ	
Export-Import Bank.....	478.4 ^j	
Total.....	901.6	295.9
Net change.....	605.7	

^a Excludes agencies in liquidation.

^b Housing and Home Finance Agency, *Second Annual Report, 1948*, pp. 338-39.

^c Farm Credit Administration, *Annual Report, 1947-48*, p. 118. This figure represents all of the change in loans outstanding of the FICB's except loans to PCA's which are included in Table 3.

^d *Ibid.*, p. 127; and *Annual Report, 1946-47*, p. 89.

^e FCA, *Annual Report, 1947-48*, pp. 148-49; *ibid.*, 1948-49, p. 24.

^f U. S. Department of Agriculture, *Agricultural Finance Review*, November, 1947, p. 147; *ibid.*, November, 1948, p. 114; USDA, *Report of the President of the CCC, 1948*, pp. 5 and 25; *Budget of the United States for the Fiscal Year, 1950*, p. 1237. The CCC sold out of inventory during fiscal 1948 in excess of loans and purchases made, receiving a surplus of income over outgo.

^g U. S. Department of the Treasury, *Treasury Bulletin*, November, 1948, p. 64.

^h Letter from the Farmers Home Administration, dated April 17, 1950.

ⁱ Computed from *Annual Report and Financial Statements of the Reconstruction Finance Corporation and Subsidiaries*, p. 16. Excludes all nonlending activities of the RFC. Includes mortgages guaranteed and insured by the VA and FHA purchased and sold by the FNMA. Includes loans made by private lenders and partially guaranteed by the RFC which were acquired by the RFC under purchase commitments. Most of the increase in loans outstanding was due to FNMA mortgage purchases.

^j Export-Import Bank, *Fourth Semi-Annual Report to Congress*, p. 40; and *Sixth Semi-Annual Report to Congress*, p. 48.

tribution to GNP even though agency activity may appear to be the proximate cause. Agencies sometimes compete with private institutions and sometimes change the environment in which private institutions operate. Further, one may trace the economic consequences of agency acts upon the relevant variables which, in turn, determine private spending. But this indicates only the direction of the effect and not the mag-

nitude of agency influences on private spending.

Accordingly, measurement must be partial and must be based on simplifying procedures:

(1) Estimates of the volume of income created by giving aid to final (private) spenders are made without regard to the qualifications discussed above.

(2) Repayment is assumed to reduce

GNP to the same extent that the original aid added to income. Thus, if 10 percent of the agency aid contributed to income, 10 percent of repayments reduces income. Under this assumption, 10 percent of "change in aid outstanding" in Table 2 would be considered income creating.

(3) No attempt is made to account for changes in private spending due to agencies except that which occurs via the multiplier. Computations are based on the income-creating proportion of net change, times the multiplier.

(4) Income creation is the process of producing new goods and services; funds spent for the purchase of existing goods are not considered income creating.

Income Created by Federal Agencies, 1948

Changes in Aid Outstanding, 1948

The first step in calculating the effect of agency activities on GNP is to compute the change in aid outstanding. This has been done in three separate but cumulative tables, each of which requires a word of explanation.

Table 2 includes aid given directly to the private sector of the economy by government agencies. The change in aid outstanding between 1947 and 1948 was a little more than \$600 million.

However, in counting the change in aid outstanding due to government-operated agencies, we are omitting what is perhaps the most important function of government agencies — the guaranteeing and insuring of loans made by private lenders. Table 3 accounts for these insured and guaranteed

Table 3. Change in Direct Aid Outstanding by Federal Agencies and in Private Loans Insured and Guaranteed by the FHA and VA, Fiscal 1948

(Millions of dollars)

Type of loan	Amount
Direct loans.....	605.7 ^a
FHA insured loans.....	1,619.8 ^b
VA guaranteed loans.....	1,975.0 ^c
Total.....	4,200.5

^a See Table 2.

^b HHFA, *Insured Mortgage Portfolio, 3rd Quarter, 1947*, p. 23; *ibid.*, 1948, p. 28; *Housing Statistics, January 1950*, p. 56; *Fifteenth Annual Report of the FHA*, p. 9.

^c Veterans' Administration, *Administrator of Veterans' Affairs, Annual Report, 1947*, pp. 56 and 208; *ibid.*, 1948, p. 76. Some figures used to find the total change in loans outstanding represent estimates of repayments. Only the guaranteed portion of loans was used in estimates; this was about 90 percent of the total loans made.

loans made by the Veterans' Administration and the Federal Housing Administration.

Table 4 deals with the two remaining agencies. They are the HHFA Federal Home Loan Banks and privately owned members of the system (largely Federal Savings and Loan Associations), and the FCA Production Credit Corporations and members of that system (Production Credit Associations). It will be remembered that neither parent agency lends directly to the public but that members of their lending systems do. The question arises as to whether one ought to count all loans made by private members as part of agency loans. Since we are concerned only with Federal aid, even though the members of both associations lend not only with agency funds (the PCA's borrow from the FICB's (but with

funds acquired from individual depositors and private lenders, the decision

Table 4. Change in Aid Outstanding by Direct Lenders, Insurers, Guarantors, and Private Members of Federal Lending Systems, Fiscal 1948
(Millions of dollars)

Type of loan	Amount
Direct lenders, insurers, and guarantors.....	4,200.5 ^a
Advances of the Federal Home Loan Banks.....	59.6 ^b
Production Credit Associations (discounts with Federal Intermediate Credit Banks).	101.1 ^c
Total.....	4,361.2

^a See Table 3.

^b HHFA, *Third Annual Report, 1949*, p. 144; *Combined Financial Statement, Members of the FHLB System, 1948*, p. 5. The gross change in loans outstanding was nearly \$1.7 billion in 1948. Since about one-fourth were insured or guaranteed by the VA and FHA, one-fourth was deducted to avoid double counting.

^c FCA, *Annual Report, 1948-49*, p. 124.

is to measure only that portion of loans made by member associations financed by borrowings from Federal agencies.

The figures shown can be refined so as to provide the amount of contribution made by agencies to gross national product. (See Table 5 and explanations.)

Conclusions

Despite the difficulty in determining a justifiable base on which to calculate the amount of GNP due to Federal agencies, the contribution of these agencies is by no means inconsequential. There is the likelihood that these estimates understate the total economic importance of Federal aid, since their influence upon interest rates and expectations is likely to encourage increased private spending, a result that would increase the significance of these agencies, even though the increase cannot be calculated.⁹

Calculation of Net Addition to GNP, 1948

Table 5 combines the income-creating loans made directly by agencies through private members of Federal lending systems, as well as the insurance of private loans by the FHA and VA.¹⁰ In fiscal 1948 these totaled about \$3.8 billion while GNP for the economy as a whole amounted to \$248.3 billion. This was about 1.5 percent of GNP. Going one step further, assume an instantaneous multiplier of 2 or 3.¹¹ With this assumption, the induced income was either \$7.6 billion or \$11.4 billion, depending upon the multiplier used. Under these conditions Federal agency contribution in 1948 was 3 or 4 percent of GNP, a not inconsiderable amount for a period when one of the largest agencies, the Commodity Credit

⁹ R. Freedman, Jr., "Federal Credit Agencies," *Quarterly Journal of Economics*, Vol. 69, No. 3 (August, 1955), pp. 421-44.

¹⁰ The existence of the Federal National Mortgage Association also accounts for the willingness on the part of private lenders to write VA and FHA mortgages, but since this particular agency's influence is reflected in VA and FHA loans, no separate calculation need be made.

¹¹ Arthur Smithies, "Keynesian Economics: The Propensity to Consume and the Multiplier," *Papers and Proceedings of the American Economic Association*, Vol. 38, No. 2 (May, 1948), pp. 299-305.

Table 5. Estimated Change in Income-Creating Loans Outstanding by Federal Agencies, in Dollars and as a Percentage of Total Change in Loans Outstanding, Fiscal 1948

Agency	Change in income-creating loans outstanding	
	Millions of dollars	As percentage of total change in loans outstanding
1. Members of Federal Home Loan Bank System (advances of FHLB only).....	+ 25.0	42
2. Public Housing Administration.....	+ 4.7	100
3. Federal Housing Administration (insured loans).....	+1,415.0	87
4. Production Credit Associations (discounts with FICB's only).....	+ 101.1	100
5. Federal Intermediate Credit Banks (loans to non-Federal institutions).....	+ 18.3	100
6. Banks for Cooperatives.....	+ 76.5	100
7. Federal Land Banks.....	- 16.1	30
8. Commodity Credit Corporation.....	- 177.9	100
9. Rural Electrification Administration.....	+ 224.5	100
10. Farmers Home Administration.....	- 59.5	95
11. Reconstruction Finance Corporation.....	- 15.7	...
12. Export-Import Bank.....	+ 478.4	100
13. Veterans' Administration (guaranteed portion of loans).....	+1,732.0	87
Total.....	+3,806.3	87

Corporation, was virtually dormant and competing private sources were able to supply adequate credit.

Table 5 contains a summary of the contribution to gross national product made by thirteen Federal agencies in 1948. The following paragraphs describe the method used to convert the data of Tables 2, 3, and 4, in order to reveal the extent of the contribution to GNP.

Line 1. Of the \$59.6 million change in loans outstanding due to advances of the FHLB to member institutions (Table 4), only 42 percent or \$25.0 million was income creating. This statistic was computed by assuming that the same percentage of funds used by member institutions (FSLA) for income-creating purposes (exclusive of VA and FHA guaranteed loans which are computed elsewhere) should be applied to FHLB loans to these institutions. The 42 percent was computed as follows:

Total change in FSLA loans outstanding.....	\$1.70 billion
Deduct: 25% VA and FHA guarantees.....	.42 billion
Deduct: Non-income-creating loans for purchase, refinancing, and capital transfer.....	.57 billion

Value of income-creating loans (construction, \$507 million; reconditioning, \$51 million; all other, \$152 million)..... \$.71 billion

This total, \$710 million, is 42 percent of \$1.7 billion; 42 percent of \$59.6 million is \$25.0 million.

Line 2. The Public Housing Administration loaned to build and operate housing projects. All of this activity was income creating. Thus 100 percent of the change in loans outstanding, \$4.7 million, is entered in Table 5.

Line 3. Eighty-seven percent of the Federal Housing Administration insured loans were income creating.

Total change in FHA loans outstanding.....	\$1.620 billion
Deduct: Loans for purchase of existing housing.....	<u>.205 billion</u>
Value of income-creating loans (new construction and reconditioning).....	\$1.415 billion

The value of income-creating loans, \$1.415 billion, was 87 percent of \$1.62 billion.

Line 4. Production Credit Association loans were used for the purchases of seed, feed, fertilizer, and other items entering directly into production. Thus 100 percent of the loans of the PCA's were considered income creating. Only those loans made by the privately owned PCA's which were financed by Federal agency sources (FICB's) have been counted, since income created by the use of funds borrowed from other private sources cannot be credited to Federal agencies.

All of the \$101.1 million change in loans outstanding was treated as income creating.

Line 5. Federal Intermediate Credit Bank loans not counted under the PCA (Line 4) or under Banks for Cooperatives (Line 6) are shown here. FICB loans were all for productive purposes, and 100 percent of the \$18.3 million change in loans outstanding was considered income creating.

Line 6. Banks for Cooperatives made short- and intermediate-term loans to cooperative associations for working capital, marketing, and warehousing commodities. All three types of loans were income creating. Long-term facility loans were also made. Since all of these uses of funds created income, it was assumed that 100 percent of the change in loans outstanding of \$76.5 million was income creating.

Line 7. Only 30 percent of the loans of the Federal Land Banks were income creating. A study of the uses to which loans were put in 1949 shows the following uses: 43 percent for refinancing mortgages; 16 percent for real estate purchases; 11 percent for refinancing chattel mortgages and current liabilities; 14 percent for building improvement and repair; 15 percent for farm operation. Hence, of the change in loans outstanding of (minus) \$55.1 million, roughly 30 percent or \$16.1 million was income creating.

Line 8. All of the Commodity Credit Corporation loans were income creating.

They were for inventory accumulation, marketing, and other purposes, all of which contributed to GNP. Thus 100 percent of the change in loans outstanding of (minus) \$177.9 million have been shown in the summary table.

Line 9. Rural Electrification Administration loans were made for the creation of electrical facilities, an income-creating activity. Therefore 100 percent of the change in loans outstanding of \$224.5 million was considered to be a contribution to GNP.

Line 10. Farmers Home Administration loans were for farm operation (−\$58.9 million), farm ownership (−\$6.8 million) and water facility installation (+\$.3 million). A small portion of these activities was concerned with insuring private loans to farmers for farm improvement and the purchase of old or existing facilities (+\$2.5 million). Of this amount, 21 percent was for farm improvement; the rest, 79 percent, for old or existing facilities. Thus 95 percent of the change in loans outstanding or (minus) \$59.5 million was income creating.

Change in loans outstanding.....	−\$62.9 million
Deduct: 79% of +\$2.5 million (insured loans for old and existing facilities).....	+ 2.0 million
Deduct: 79% of −\$6.8 million (direct loans for farm purchase and improvement).....	− 5.4 million
Value of income-creating loans (farm operation, −\$58.9 million; 21% of direct and insured farm purchase loans, −\$.9 million; water facilities, +\$.3 million).....	−\$59.5 million

Line 11. Reconstruction Finance Corporation loans were income creating by (minus) \$15.7 million in 1948.¹²

Change in loans outstanding.....	+\$100.1 million
Deduct: 50% industrial and commercial loans (50% of \$35.2 million).....	+ 17.6 million
Deduct: 50% deferred participation loans (50% of \$27 million)	− 13.5 million
Deduct: 100% FNMA purchases of FHA and VA mortgages..	+ 111.7 million
Value of income-creating loans (50% industrial and commercial loans, +\$17.6 million; 50% deferred participation loans, −\$13.5 million; 100% loans to political subdivisions of states and territories, +\$14.6 million; 100% loans to the United Kingdom, −\$34.4 million).....	−\$ 15.7 million

Line 12. The Export-Import Bank loans were entirely income creating in

¹² Sources of the statistics from which the income-creating proportion of loan changes were computed are as follows: U. S. Congress, Senate, *Hearings Before a Special Subcommittee on Banking and Currency*, on S.R. 132, Part 2 (January, 1948), 80th Cong. 2nd Sess., p. 580; RFC, *Annual Report and Financial Statements of the RFC 1948*, pp. 16-17; Letter from the RFC dated May 5, 1950; *Hearings, op. cit.*, Part 1 (December 1947), p. 191.

that they were used for the purchase of new goods.¹³ Thus 100 percent of the change in loans outstanding of \$478.4 million was a contribution to GNP.

Line 13. Veterans' Administration loan guarantees were 87 percent income creating. Thus 87% of \$1.9 billion or \$1.7 billion was income creating. Computation of this figure is quite complex since the VA reported cumulative loan guarantee figures rather than the change in loans outstanding.¹⁴ However, it was stated that in 1948, 3.2 percent of home loans, 10 percent of farm loans, and 20 percent of business loans were repaid. In 1948, 2.4 percent of all loans outstanding had been repaid. Thus the change in loans outstanding was computed by taking the cumulative totals for each type of loan (farm and business loans were negligible, amounting, in some cases, to less than \$100 million) in each year and applying the percentage repayment given above. In 1947, it was necessary to compute each type at 2.4 percent owing to the lack of better data. When these adjusted totals of loans outstanding were found, those outstanding for 1947 were subtracted from those outstanding in 1948. The computations were as follows (dollar amounts in millions):

	<i>Cumulative, 1948</i>	<i>Percent repaid</i>	<i>Amount repaid</i>	<i>Outstanding, 1948</i>
Home.....	\$3.291	3.2	\$.105	\$3.186
Farm.....	.081	10.0	.008	.073
Business.....	.115	20.0	.023	.092
	<u>\$3.487</u>		<u>\$.136</u>	<u>\$3.351</u>
	<i>Cumulative, 1947</i>	<i>Percent repaid</i>	<i>Amount repaid</i>	<i>Outstanding, 1947</i>
Home.....	\$1.350	2.4	\$.032	\$1.318
Farm.....	.027	2.4	.001	.026
Business.....	.033	2.4	.001	.032
	<u>\$1.410</u>		<u>\$.034</u>	<u>\$1.376</u>
	<i>Total</i>	<i>Home</i>	<i>Farm</i>	<i>Business</i>
Outstanding, 1948.....	\$3.351	\$3.186	\$.073	\$.092
Outstanding, 1947.....	<u>1.376</u>	<u>1.318</u>	<u>.026</u>	<u>.032</u>
	<u>\$1.975</u>	<u>\$1.868</u>	<u>\$.047</u>	<u>\$.060</u>

No figures were given describing the uses to which the insured funds were put. It is assumed that farm and business loans were all income creating since most of the funds went for "production." In any case, the amounts involved were negligible. For lack of better data, it is assumed that funds were used for the same

¹³ Letter dated May 3, 1950.

¹⁴ See footnote c, Table 3.

purposes as FHA insured loan funds. GNP due to the VA is computed as follows (dollar amounts in billions) :

	<i>Change in loans outstanding</i>	<i>Percent income-creating</i>	<i>Amount income-creating</i>
Farm.....	\$.047	100	\$.047
Business.....	.060	100	.060
Home.....	1.868	87	1.625
Total.....	<u>\$1.975</u>		<u>\$1.732</u>

The reader is reminded that these calculations are based only on that portion of loans insured or guaranteed by the VA. The total amount of the actual loans came to twice that since VA loans were 50 percent guaranteed. In many cases the rest of the loan was FHA insured and has already been accounted for.

Books Reviewed

A Theory of the Consumption Function. By Milton Friedman (Princeton: Princeton University Press for the National Bureau of Economic Research, 1957. Pp. xvi, 243. \$4.75)

As Friedman points out, research in consumption was greatly stimulated by Keynes, who wrote that "current consumption expenditure is a highly dependable and stable function of *current* income" and that "the amount of aggregate consumption mainly depends on the amount of aggregate income (both measured in terms of wage units)." In addition, Keynes went on to say "when real income is increased, consumption will not increase by the same absolute amount, hence a greater proportion of income is saved as real income increases."

Research at first confirmed Keynes's theory but then different findings threw doubt on it. Kuznets' study of United States savings between 1899 and 1948 showed that there had been no increase in the percentage of income saved during half a century despite a substantial rise in real income. Dorothy Brady and Rose Friedman found that the expenditures of consumer units depend not on current income but on the position of the consumer unit in the income scale of the community (this is known

as the relative income hypothesis). Duesenberry stressed the effect of emulation of one's neighbors on the consumption patterns of consumer units and found that consumption was related not to current income but to the highest level previously reached. Modigliani independently came to much the same conclusions regarding the effect on consumption of the previous highest level of income. Tobin, on the other hand, favors the current income hypothesis over the relative income hypothesis but suggests that changes in wealth may explain the constancy over time of the fraction of income saved.

These doubts regarding the validity of Keynes's analysis coupled with discussions over a number of years with Dorothy Brady and Margaret Reid, both of whom are pioneers in research in consumption economics, stimulated Milton Friedman to reappraise consumption function theory. Friedman feels that he has developed a general theory of the consumption function which is substantiated by the empirical research which has been carried out over a number of years.

Friedman's hypothesis can be stated briefly in one equation:

$$C_p = k(i, w, u) Y_p$$

Planned or permanent consumption

(C_p) is a fraction (k) of planned or permanent income (Y_p) that does not depend on the size of permanent income but depends on other variables, in particular the interest rate (i), the ratio of nonhuman wealth to income (w), and other factors affecting the consumer unit's taste for current consumption versus the accumulation of assets (u) — such factors as age, size of family, education, and the degree of uncertainty attached to the receipt of income. Permanent consumption is one component of measured (or current) consumption, the other component being transitory consumption. Similarly, measured income is made up of permanent and transitory income. The transitory components reflect the influence of factors regarded as chance or random by the consumer unit, as well as errors of measurement.

Friedman's model depends on two explicit assumptions and a definition of consumption expenditures which includes the use value of consumer durable goods (i.e. depreciation) but not the purchase price. The difference between the purchase price of a durable good and its use value is considered savings. The first assumption is that the transitory components of consumption and income are uncorrelated with their corresponding permanent components or with each other. This means that a windfall of income (transitory component) will not cause a corresponding increase in consumption expenditures unless permanent income increases. Friedman argues that a windfall is more likely to increase savings (through durable good purchases) than to increase consumption expenditures.

The second assumption is that the mean transitory components of consumption and income are zero. This assumption is not essential to the hypothesis but simplifies the analysis.

He then proceeds to test his hypothesis against the body of existing budget and time series data; some of his conclusions follow:

(1) A period of three years or slightly longer is necessary for obtaining a consumer unit's permanent income.

(2) It is possible to determine the relative importance of permanent and transitory components of income for each budget study by ascertaining the elasticity of income with regard to consumption. Also if it is assumed that the transitory components of income and consumption are zero for the group as a whole, then mean current income (or measured income as Friedman terms it) equals mean permanent income for the group. Similarly average current consumption expenditures equal mean permanent consumption expenditures.

(3) Transitory factors account for about 2 percent of the variance in current consumption expenditures and about 18 percent of current income. These differences in the importance of the transitory components arise because consumption expenditures are the sum of expenditures for a large number of items and individual items may be affected in opposite directions whereas income is usually dependent on one major source.

(4) The average propensity to consume is remarkably similar for the different family budget studies carried out in the United States from 1888 to 1950.

Except for the 1944 study when wartime savings were unusually high, the average propensities over the period varied from .89 to .92. Similarly Goldsmith's study of savings shows aggregate savings to have been a fairly constant percentage of disposable income from 1897 to 1949. This constancy of savings and consumption is not required by Friedman's hypothesis. Why should consumption have been so constant when real income was increasing? It must be that the variables affecting k (in Friedman's equation) and the distribution of consumer units by these variables have been either constant or offsetting in their effects. It seems most probable that the effects have been offsetting one another because of the declining relative importance of farming (which tends to raise k), the declining size of family (which tends to lower k), and the altered role of the state in the provision of security.

(5) Budget studies have shown that consumption expenditures of farm families are lower at each absolute level of income than those of nonfarm families, that their expenditures increase less rapidly as current income rises, and that k has a lower value than for nonfarm families. Similarly urban entrepreneurs have lower values of k than urban nonentrepreneurial families. Friedman found that k averaged .90-.95 for wage-earner families compared with .80-.90 for entrepreneurs. He attributes the lower values of k for the entrepreneurs to greater uncertainty of income prospects which makes the need for a reserve against emergencies greater. Also the entrepreneurs can earn a higher rate of return by direct invest-

ment in their own enterprises than wage earners can earn by indirect investment through financial intermediaries.

(6) Studies indicate that both the elasticity of consumption and the average propensity to consume are higher for Britain and Sweden than for the United States. Friedman attributes this to the fact that transitory factors are more important in the United States than in the other countries (approximately 18 percent of average current income in the United States is transitory compared with 13 percent in the United Kingdom), and that the need for reserves for emergencies is less in the United Kingdom than in the United States because of greater social security by government, less shifting between classes, and so on.

(7) The more traditional methods of studying consumer behavior led to the conclusion that negro families spent a smaller proportion of current income on consumption than white families in the same locality. Friedman's analysis leads to just the opposite conclusion—the propensity to consume is a larger percentage of permanent income for negro families than for white families. He finds that a larger percentage of the income of negro families is transitory; hence, by using current income rather than permanent income, consumption appears lower for negro families than for whites.

(8) Duesenberry found that as current income decreases or increases, there is a lag in the change in consumption expenditures. Friedman argues that these so-called lags in consumption are due to the effects of the transitory com-

ponents of income, that consumers base their consumption patterns on permanent rather than on current income. Thus a three-year period is much more realistic than a one-year period of income observation.

What importance does Friedman attach to the acceptance of his hypothesis by his contemporaries? He feels that acceptance will mean that greater emphasis will be placed on finding the major determinants of k and on measuring their influence; that regressions of consumption on income will now be used to determine the proportion of permanent income in total income; and that budget studies will cover more than one year. His hypothesis is important too for the theory of economic development of underdeveloped countries. If the savings ratio is independent of the level of income, the old argument of maintaining inequality to maintain a high level of savings in order to foster economic development would no longer be valid. In the Friedman model high saving comes about not because of inequality of income but because of uncertainty, as long as the uncertainty does not reduce return on investment.

Friedman's book should stimulate some soul searching among economists regarding consumption function theory and its ability to explain consumer behavior.¹ The reviewer believes that this stimulation alone will be a significant contribution whether the hypothesis is amplified, modified, or forgotten in the

next decade. Friedman's use of the permanent income concept helps to clarify many formerly contradictory findings. His classification of the use value of consumer durables as current consumption with the balance of the purchase price as savings is a useful method of classification, although not originated by Friedman. However, lack of knowledge of the life of consumer durables makes it rather impractical. Friedman also leaves many questions unanswered, particularly the influence of the factors i (interest rate), w (ratio of nonhuman wealth to income), and u (other factors such as age, size of family, and education) on consumption and savings. Perhaps the Ford Foundation study on consumer behavior will be able to throw considerably more light on the savings of consumers, and thus on the theory of the consumption function.

JEAN M. DUE

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Balances and Imbalances of Payments.

By Sir Geoffrey Crowther (Boston: Harvard University, Graduate School of Business Administration, Division of Research, 1957. Pp. vii, 70. \$2.00)

As long as fifteen or twenty years ago, the author, then editor and now managing director of *The Economist*, sounded the dollar shortage alarm (see the references in Professor Kindleberger's *The Dollar Shortage*, pp. 3-4); and events of the intervening decades have not shaken Sir Geoffrey's belief in the reality of "a chronic tendency toward a shortage of dollars." Indeed,

¹ For a critique of Friedman's hypothesis see "Consumption Patterns and Permanent Income," by Irwin Friend and Irving B. Kravis, *American Economic Review*, Vol. 47 (May, 1957), pp. 536-55.

the central theme of this slim volume (the George H. Leatherbee Lectures, 1957) is a defense of his refreshingly bold prediction that full convertibility is not just around the corner.

Sir Geoffrey's admittedly approximate characterization of the situation today is that the free world is itself divided into two (financial) worlds. We have, on the one hand, the sterling area and EPU countries (the "free Eastern Hemisphere"), linked by the common membership of the United Kingdom. On the other, there is the "dollar area," comprising the North American countries and the independent Caribbean states. Within each of these worlds, there exists a considerable freedom from currency restrictions — at the very least, as far as current transactions are concerned. For trade between these worlds, however, such is not at all the case. It is just this structure, in both aspects, that is confidently expected to "remain with us for a very long time."

Why this expectation? Essentially, it stems from an appraisal of war and political change: wars that have, because Europe was the battlefield, increased so greatly the relative economic strength of the United States; and domestic political developments, felt in most free world countries, that have sapped the effectiveness of the classical balance-of-payments adjustment mechanisms. Because the United States is so strong relatively, the gap (at current prices) between the demand for its exports and its demand for imports is necessarily large — both historically and relative to dollar reserves. For the same reason, the respective demand elasticities

are probably very small; in fact, there is in Sir Geoffrey's mind no question but that both demand curves are relatively inelastic, and moreover, a suspicion that the sum of the elasticities is less than one. But even ignoring this suspicion, the implication is clear: at a minimum, the restoration of a trade balance would require a very considerable price adjustment. The difficulty, as the author sees it, is that exchange rate or domestic price level adjustments of the magnitude required are, for political reasons, quite out of the question. Then, too, the possibility of a devaluation-induced capital flight or domestic inflation cannot be easily dismissed.

Moreover, in Sir Geoffrey's opinion, we are not likely to find a remedy for trade imbalance in American capital outflows. He does not, as a matter of definition, regard a balance based on governmental action as a legitimate solution. More than this, however, his feeling is that the United States aid program, now too small to solve the problem, is not likely to be increased in the near future. Finally, he is no more optimistic about private capital flows to underdeveloped countries; it is unlikely, as Sir Geoffrey sees it, that the amount of capital that underdeveloped countries can absorb per unit of time will, for technical and other reasons, prove large enough to offer a full solution to the dollar shortage.

Certainly, for believers in one world (financially speaking), this is a thesis of despair. Not so for the author. For, as he points out, we do have two worlds, not twenty or thirty. And in his prediction of a continuing dollar prob-

lem there is the guarantee of convertibility over wide regions. There is not much chance, according to Sir Geoffrey, that trade imbalances between sterling-EPU countries will become so great in the foreseeable future as to require other than the classical remedies; witness the plans for a Common Market and a Free Trade Area. But perhaps even more important is Sir Geoffrey's belief that the now existent payments barriers offer no serious obstacle to over-all political unity in the free world.

This, then, in capsule form, is the argument of Sir Geoffrey's latest book. Of course, no attempt at a detailed appraisal can be given here, so let two rather obvious comments suffice. First, the author's argument is of the "broad brush" variety; none of the points advanced are considered in detail (statistical or otherwise), and for this reason, the book can hardly be compared with (say) Professor Triffin's recent *Europe and the Money Muddle*, which explores the same problem. But clearly, this is a limitation imposed by the occasion that prompted the essay. Second, the book is readable and (for the type of effort it is) provocative in the extreme; again, however, this can hardly come as a surprise to those already familiar with *The Economist*.

JOHN H. KAREKEN

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Enterprise in Oil: A History of Shell in the United States. By Kendall Beaton (New York: Appleton-Century-Crofts, 1957. Pp. xiii, 815. \$7.50)

In many respects this biography of the American subsidiary of the Royal Dutch-Shell Group resembles other recent oil company histories. It is long; it is scrupulously footnoted; and the sponsoring company is credited by its biographer with the utmost cooperation in opening files and making key personnel available for interviews. As an ex-journalist, Kendall Beaton is aware of the possibility that the sheer quantity of information spread before the reader may lead to surfeit. Indeed, he fears that "Many aspects of the history . . . are too specialized or too detailed to interest the general reader" (p. vii). Even so, he hopes that his book will assist "some future historian" in "arriving at a better appraisal of the Shell companies and their place in the American scene."

Beaton is unduly modest on two counts. In the first place he has spared his readers the mammoth sentences, the oppressive sense of rigid organization, and the mounting tedium of conventional business history prose. A clear, imaginative, and unobtrusively graceful style infuses with meaning and excitement what could easily have been dull passages. Shifts in the nomenclature of Shell gasolines are made to carry something of the melodramatic suspense that accompanies the unfolding of drilling developments at the Ventura field. More important, it would seem that, considered purely as business history, Beaton's performance needs few apologies. Its defects in this regard — which will be touched on later — are certainly no greater than appear in the finished products of other workers in the field, including those of the Har-

vard School to whom the author acknowledges his intellectual indebtedness (p. 702). The "future historian" of the American petroleum industry by diligent use of the table of contents, the admirably organized index, and a ten-page chronology of important events will be able to synthesize from this book a valuable survey of Shell. Beaton's use of his sources is such as to inspire confidence, and indeed a measure of admiration, in view of the linguistic and geographical problems encountered in his research.

From an organizational standpoint, Shell presents obstacles in addition to those usually faced by the business historian committed to an encyclopedic endeavor. To begin with, despite its vaguely functional character (pp. 54-55), the division of the Royal Dutch-Shell management between London and The Hague seems never to have been strictly adhered to although the top-level geologists and engineers staffing the United States companies during the twenties and thirties were pretty uniformly Dutch. Nor does the division of responsibility between the Group and the American companies and among the American companies themselves ever become completely clear — probably because there was no explicit understanding on the matter by the top officials themselves. For instance, the acquisition of the New England Oil Refining Company in 1928, by which Shell entered the eastern market, had been foreshadowed in 1925 by "considerable correspondence" between "Corbett in London, Van Eck and Airey in New York, Godber in St. Louis and Legh-Jones in San Francisco" (p.

316). Yet it was officials of Asiatic Petroleum Company, "a supplier of materials and oils to Group companies outside the United States" (p. 149), who actually initiated the deal with New England. Van Eck, president of Shell Union (which, as the United States holding company, had to foot the bill) entered the negotiations only in their final stages (pp. 314-22). In a later crucial move, it appears to have been Van Eck, then a managing director of the Group in Europe, who by correspondence with Fraser, president of Shell Petroleum, was instrumental in the drastic contraction of Shell's eastern marketing and refining in the late thirties (pp. 441-48). But Fraser himself had commissioned a report on possible economies in 1936 (p. 431).

In 1935 another important change in Shell's policy had occurred when the company set out to reduce its dependence on purchased crude (p. 466). No mention is made of the European directors in this connection, nor is any official of the American company credited with sponsoring this important decision. One senses a relaxation of control from Europe as the United States company aged; there is, however, no explicit statement on the point. It is disappointing that while Beaton is generous with sketches of the personal histories of earlier executives sent out from The Hague or London, there are only a handful of terse references to the present chief executive of Shell Oil Company.

In one respect, its financial venturesomeness, Shell seems to have been exceptional. Deterding in 1912 was determined, one might say at any cost, to

move into a strong position in the United States. At the very least, he insisted on ownership of crude production of 10,000 barrels a day in the mid-continent area and acquired it, even when his purchases went against the advice of the Group's geologist. That Roxana eventually proved successful is traceable to its continued access to the resources of the Group when attractive deals such as joint ventures with Marland made their appearance later on. Until the late thirties, Shell was abysmally ignorant of its transportation, refining, and marketing costs. Only the pressure of the depression forced it to examine cold-bloodedly the value of its production properties and the logic of its refinery locations and equipment. It is surprising to discover that jerry-built as it was, saddled with absurdly over-extended marketing territories — in Buffalo and Pennsylvania the company "realized" two cents less from its gasoline than if it had sold at the Gulf (p. 451) — and ramshackle refining and terminal equipment in New England, the company showed losses in no more than four of the depression years. In one year only, 1931, could the deficit have caused serious concern. In other years, profits of Shell Pipe Line and the Pacific Coast companies offset losses of the mid-continent and Atlantic seaboard organizations (p. 783). One is forced to conclude that it is difficult for a large company to be unsuccessful in the oil business. On a smaller scale, the Group's persistence in continuing chemical research during the depression is another indication of its willingness to risk funds in projects with a long pay-out period (p. 525).

It is necessary to mention those areas of Shell's development that are inadequately discussed. The author seems to believe that, compared with Standard of Indiana, Shell was at a pricing disadvantage as a result of its expansion during the high-cost 1920's. He does not inquire into the nature of the translation of sunk costs into pricing policy upon which his thesis of unfair competition rests (p. 428). Beaton also fails to delineate the pattern of competition in the United States between Shell and other giants in either the crude or products market, although he touches on their hostility in the foreign field. Little or nothing appears on crude oil pricing or the relation of the United States tax structure to exploration and production.

In spite of the company's avowed program of reducing its dependence on purchased crude, it had succeeded in raising the share of its own production only to 57 percent of its requirements in 1955, as against 53 percent in 1935 (pp. 784-85). Beaton never mentions the purchase of products, although there are indications from other sources that the company has bought a rather large share of the gasoline marketed under the Shell brand. While we are regaled with the complete list of Roxana's jobber acquisitions during its empire-building period (pp. 298-313), a curious reticence prevails regarding Shell's relations with independent distributors, whose existence is mentioned only once (p. 450). That dealer margins and rental adjustments provide a continuous source of difficult decisions for management, requiring a delicate balance of personal and financial elements

to maintain a sound policy, is common knowledge among students of the oil industry. Yet Beaton touches on the problem only in connection with his survey of the impact on Shell of the early years of the Great Depression (pp. 20-22). Had Beaton attempted to provide the same detail on the history of marketing conflicts that he had used in unfolding Shell's achievements in refining technology, he would have had to double the seven years he has already devoted to his labors. And it is hard to believe that the company would have been as cooperative in sponsoring the project. When the subject of the work has to make basic material available for its own biography and must also pay the bills, it is inevitable that the finished product will emphasize, to a large extent, what the company believes to have been the important features in its development. This presents a dilemma to business historians that they have, so far, not only been unable to resolve, but even unwilling to face.

JOEL B. DIRLAM

Boni, Watkins, Jason and Company

The Economic Consequences of Automation. By Paul Einzig (New York: W. W. Norton, 1957. Pp. 255. \$3.95)

In his Preface Dr. Einzig says, correctly, that his new book embodies the first attempt by anybody to explore systematically the national and international economic problems that will appear as automation increases in importance. So far as this reviewer remembers, this book constitutes Dr. Einzig's most ambitious venture onto

the darkling plain of deductive economic theory. He himself says "It is certainly the most difficult task I have ever undertaken."

Dr. Einzig's innumerable books on topics in banking and international finance marked him long ago as a prodigy among writers on economic questions. Certainly only the late John A. Hobson could be regarded as his peer when measured by weight and tale (comparison on any other basis would be pointless). A journalist and correspondent also — London's *Financial Times* and the *Commercial and Financial Chronicle* — Dr. Einzig is an astute observer who ordinarily writes with great clarity and much to the point. In this respect, the present volume is not his best one. The fault, however, lies in the "shapelessness" of the subject and not in the rhetoric of its expositor.

By the nature of the topic itself and the dimensions of Dr. Einzig's undertaking, the book does not and could not come to very many firm conclusions. In the first place, automation is not therein defined except as a "technological method that tends to reduce current production costs in terms of man-hours per unit of output" (pp. 16-17). Since there is no ecumenically binding definition of automation anyway, this is certainly not wrong. But it does gloss over at least one interesting aspect of automation that is, later in the book, adverted to by the author himself. Automation is intended to reduce labor costs in a specific transformative process and — given the continuous-flow operation that alone justi-

fies automation's initial cost—doubtless does so. But man-hour savings at that point may be nullified, in an imperfectly competitive industry, by substantially increased "man-hour costs" in marketing and distributing, and/or by external diseconomies in regard to raw materials. It all depends on what stages are to be subsumed under "production."

A key assumption of *The Economic Consequences of Automation* is that this "technological method" will before long become diffused, widely but not universally, throughout industry and trade, with palpable world-wide effects on employment, prices, investment, and so on. Dr. Einzig's *modus operandi* is to treat automation as the independent variable and to consider in turn its impact on a number of other economic variables, treating these as the dependent ones. Partializing a big problem in this fashion is always convenient and frequently unavoidable, since in many instances the sole alternative would be to concede in advance that everything depends on everything else. But the compass of Dr. Einzig's book includes 24 different chapter-topics, a number of which surely merited a more exhaustive treatment than they received. "Capital Requirements" are explained in ten pages, the "Wages-Profits-Prices Triangle" in seven; the "Threat of Raw-Material Shortages" is spared only five. Topics that are in fact inextricably involved with one another are treated discretely, for example "Deflation or Inflation?" and "Balance-of-Payments Problems." This gives rise to the shadow of a suspicion that some of the book's conclusions might have

been different if it had been outlined differently.

Despite its publication by a New York firm, internal evidence (e.g., p. 168, pp. 239-40) suggests that the book was aimed chiefly at British readers. Nevertheless, many American readers may find it thought provoking, for the problems Dr. Einzig poses are entirely general ones; and if present contingencies materialize, some of them may become critically important in the United States within a few years.

On the whole the tone of *The Economic Consequences of Automation* is optimistic. The author foresees no repetition of the violent dislocations that accompanied the industrial revolution. In the industrialized democracies a major problem will be, not unemployment, but rather how to persuade labor and management to be forbearing in the matter of claims on the national product lest capital formation prove inadequate for automating industry to the optimum degree (pp. 244-47). A rising price level should expedite the absorption of any technologically unemployed, and the welfare state can be expected to socialize the human costs of material betterment in any case, instead of saddling them exclusively on the workers (as was the custom in the dawn of the machine age). Dr. Einzig does, however, express some fear that automation will exacerbate the ill will many people in "have-not" countries already harbor toward the advanced nations, who appear to be drawing toward themselves all the earth's good things.

Dr. Einzig's new book is neither superficial nor devoid of interest, and

it merits more than the conventional notice which is the due of any path-breaking investigation of a complex problem. One could have wished it to be longer and better integrated. But on the other hand, automation may already have passed its emergent phase, and timeliness too is a virtue.

A. STUART HALL

University of Nebraska

A Concept of Agribusiness. By John H. Davis and Ray A. Goldberg (Boston: Harvard University, Graduate School of Business Administration, Division of Research, 1957. Pp. xiv, 136. \$6.00)

The Harvard Business School established in December, 1952, a "Program in Agriculture and Business." It is a follow-up of the Food Foundation, which was authorized by the President and Fellows of Harvard College in 1944 but did not come to fruition. This is the first published study growing out of this developing interest in a "business" approach to the problems of agriculture and the related food and fiber industries. It is technical and is designed for the professional economist, not for the general public. A companion volume, *Farmer in a Business Suit*, published by Simon and Schuster (1957, \$3.50), undertakes to present the same point of view in popular form. One cannot escape a feeling that the style is marred somewhat by overuse of the term "agribusiness.")

The central theme is that the problems of agriculture and the industries closely related to it should be approached in over-all terms rather than

merely as farm problems. Many of the functions formerly carried out on the farm have now been shifted to off-farm industrial entities, for example, processing, selling, many of the services of supply, and so on. This has given rise to the price-cost squeeze which the authors regard as one of the central problems in agricultural policy. Davis and Goldberg also stress the very slight tendency for agriculture to develop the vertical integration which is so widespread in other branches of the economy. However, the reader is left in some doubt as to whether the authors visualize and advocate actual vertical integration or merely an effort to achieve better coordination of operations at the various stages of production and distribution. Perhaps it is too early for them to have settled views about that.

The central framework used and, in fact, the main body of the book is an input-output analysis based on the Leontief model. This presents, probably more comprehensively than has ever been done before, a picture of the flow of business operations relating to agriculture and the magnitudes of the interstage purchases and sales in 1947 and 1954. Even though 1947 is a somewhat unrepresentative year, much of the information presented is based on that year because of the availability of data from the 1947 *Census of Manufactures* and other compilations related to or based on it.

The final chapter deals with the implications of this approach in efforts to arrive at a more realistic and sounder policy with respect to producing, processing, and distributing agricultural

products. Here the authors stress the need for some reorientation of research, with more emphasis on interrelationships between "business" and agriculture, and urge closer collaboration of the farm groups with the farm supply industries, the processors of farm products, and the distributors of farm products.

Space permits only a few general observations which obviously are far from adequate with respect to such a far-reaching and complex set of relationships. It seems quite possible that the significance of recent changes in this area has been overemphasized. Off-farm processing, storing, transporting, and distributing have been with us for a very long time. Perhaps the most striking feature of the change is the much heavier reliance of farmers on purchased production goods and services and the consequently heavier cash outlays which accentuate the price-cost squeeze and make the farmer much more vulnerable to increasing rigidities in wage rates, transportation costs, and handling charges. The heart of the changed situation lies in the fact that integration, cost rigidities, and size of unit are much more evident in these related industries than in the past.

The authors may have assumed more unity of interest among farm producers, suppliers, processors, and handlers than actually exists. Granted that more cooperation and exchanges of ideas among these groups are desirable, it cannot be assumed that their interests will coincide even if they are all fully informed and in close contact. For example, meat packers, stockyard people, grain dealers, and railroads

make or lose money according to volumes handled rather than according to the level of prices to farmers. There are exceptions, of course. For example, the interests of farm machinery manufacturers are heavily affected by prosperity or depression in agriculture. However, these conflicts of interest do need to be brought under study, and even more, there is need for study of the areas of mutual interest in which sound cooperative effort could be helpful.

MURRAY R. BENEDICT

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Capital in Agriculture: Its Formation and Financing Since 1870. By Alvin S. Tostlebe (Princeton: Princeton University Press for the National Bureau of Economic Research, 1957. Pp. xxvi, 232. \$6.00)

This monograph reports the findings of one of the studies of the National Bureau of Economic Research dealing with long-term trends in capital formation and financing in the United States. This particular study describes the major trends in real capital formation in agriculture from 1870 and in financing from 1900. The author adds interest and value to the book by suggesting prospective trends, in some cases to 1975. Inasmuch as the introduction and summary are incorporated in the first chapter, covering 38 pages, the reader is able to get the major findings and forecasts with minimum effort on his part. The more detailed results and supporting data are included in several additional chapters, some very short and nine appendixes.

Physical capital in agriculture in the

United States grew steadily from 1870 to 1950, except for the period 1920 to 1935, both when measured in current prices and when measured in 1910-14 prices. Because of the decline in the number of persons engaged in farming after 1920, the rate of capital formation per person engaged rose at an accelerating rate between 1930 and 1950 even when measured in 1910-14 prices. In the early years of the period studied, the growth of farm capital was closely associated with the settlement of new land. Since 1900 the real value of farm land has advanced very slowly but the rate of increase in the real value of farm implements and machinery between 1940 and 1950 exceeded the rapid rate of increase from 1870 to 1920.

The period 1920 to 1935 was one of agricultural depression in the United States; the value of farm capital fell substantially when measured in current dollars and slightly when measured in 1910-14 dollars. Small gains in the real value of land did not offset declines in the value of buildings, machinery, and horses and mules.

Among regions the most rapid rate of growth of physical capital for the entire period was in the Mountain, Great Plains, Pacific, and Texas-Oklahoma areas. Real values actually declined in the Northeast and the rate of growth was only moderate in the Corn Belt.

Prospective trends, as reported by Dr. Tostlebe, are as follows:

(1) The volume of farm products per unit of capital and per unit of land will rise, most notably in the case of land.

(2) Capital per person engaged in farming will rise, making possible a continuation of the secular rise in output per person engaged.

(3) Capital per farm will rise.

(4) Growth of capital in the aggregate will occur only in times of reasonable prosperity at an average rate that is likely to be substantially less than 1 percent per annum.

(5) The composition of farm capital will continue to be slowly modified. Machinery, productive livestock, and cash balances will gain in importance; land, buildings, and stored crops will decline, relatively. The changes in the relative values of the components of farm capital will be brought about by technological changes that are introduced because they are economical.

(6) Funds for investment in agriculture will be provided chiefly by farmers out of gross income, although amounts and proportions provided by creditors may remain above the 1950 level.

(7) Non-real-estate credit will represent a larger fraction of total credit than in the first half of this century. Long-term mortgage loans will be used relatively less for purposes of capital formation than in earlier years, and relatively more in transferring ownership of real estate.

The author assumes a reasonable degree of farm prosperity; otherwise he expects stagnation in capital formation in agriculture.

Historical data support the expectation that by far the larger part of new capital formation will be financed out of production by farmers without as-

sistance from creditors. But increasing amounts of help from creditors will probably be needed to "assemble and develop the fields, the herds, and the equipment which will make efficient operation profitable. Some of this credit will, of course, contribute nothing to capital formation, as it will be utilized in transferring ownership of existing resources." There is a growing awareness on the part of farmers and creditors of the benefits to be derived from heavier capital investments per farm and per worker. Non-real-estate or

"production" credit is certain to grow in importance barring a marked inflation in farm land values or a depression which would force funding of short-term debts.

This book is a valuable addition to the field of knowledge to which it is directed. The appropriate historical data are recorded and interpreted and the author states the assumptions on which his forecasts are based.

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BUREAU OF ECONOMIC AND BUSINESS RESEARCH

The Bureau of Economic and Business Research, established in 1921, is the research department of the College of Commerce and Business Administration. Economic and business information, including material on tested business practices, is compiled by the Bureau and made available to Illinois businessmen and others interested in business and related problems. Although the major part of its work deals especially with Illinois, the Bureau also engages in general economic research.

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